# CLIMATE CHANGE ANALYSIS FOR SRI LANKA AND PROPOSED PROJECT DIVISIONS

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*This is an updated report with the main aim of documenting methods and a wider set of climate change results for Sri Lanka and the proposed project locations than those included in the proposal. The report may be revised based on comments received from reviews of the proposed project. All data and software used are open access.*

# Contents

## 1. Projected climate changes in Sri Lanka

To deal with uncertainties in projecting future climatic changes, analyses focused on consensus among General Circulation Models (it is generally recommended to treat the different GCM projections as equally likely and to adopt ensemble [consensus] approaches). All mid-21st century projections available from WorldClim for Representative Concentration Pathways 2.5 (a low emissions scenario), RCP 4.5 (a medium emissions scenario) and RCP 8.5 (a high emissions scenario) were included (see methodology). In checking for consensus among models, the likelihood scale recommended for the fifth assessment report of the IPCC (Mastrandea *et al.* 2011) was adopted. As such, results were reported as **likely** in case that at least 66% of models showed the same trend and as **unlikely** in case that at most 33% of models showed the same trend.

Based on results for all RCPs, it is likely that precipitation will increase in August, September and October, a period during the South-west monsoon season. The results for RCP 8.5 (the highest emissions scenario) of likely rainfall increases from September to December during the *Maha* cropping season agree well with results obtained from 20 GCMs for Batalagoda in Kurunegala (Zubair *et al.* 2013).

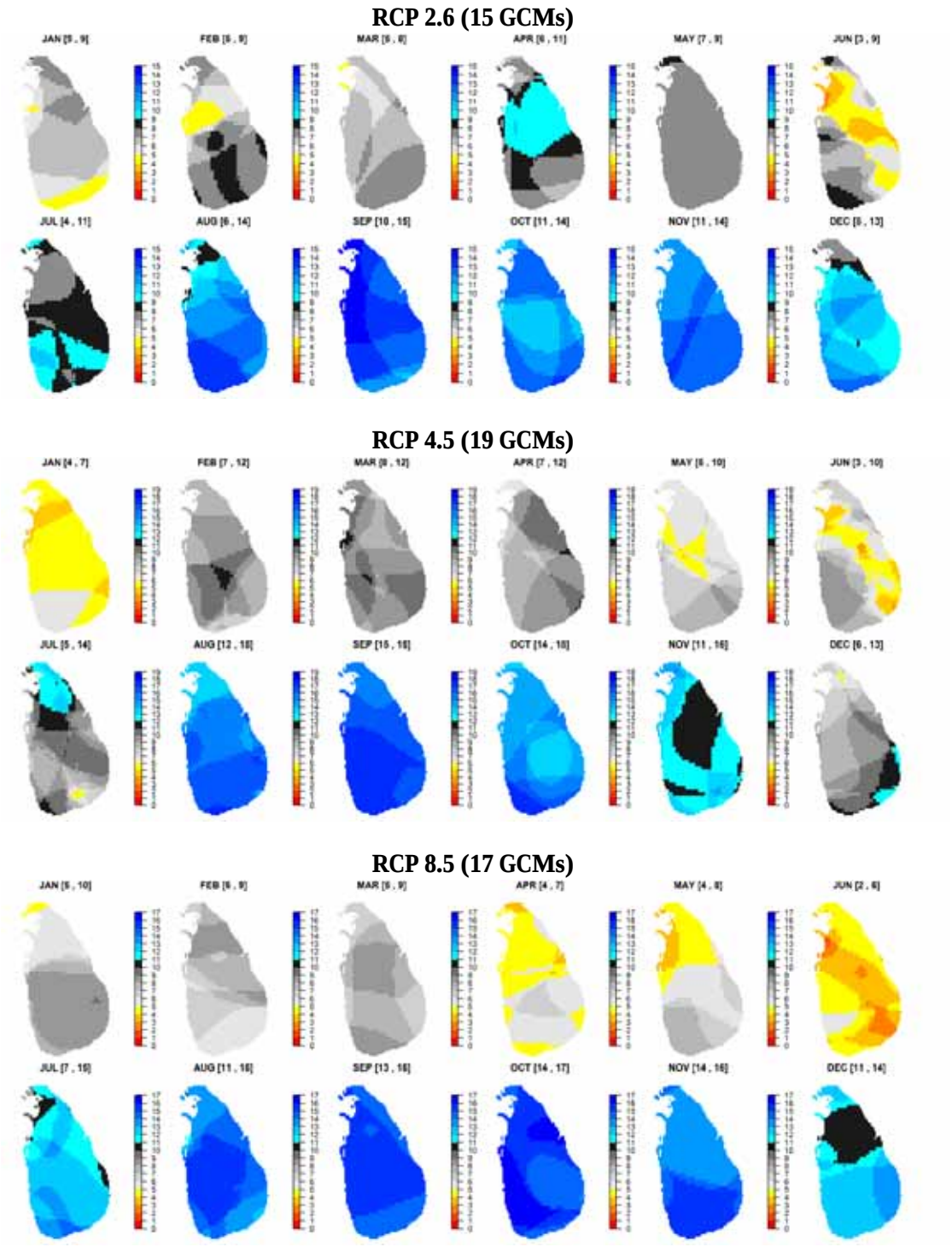
For RCP 4.5, it is likely that precipitation will decrease in January, a month in the middle of the North-East monsoon. As such, these results agree with analyses done by the Sri Lanka Center of Climate Change Studies (CCCS, Department of Meteorology; Jayawardena *et al.* 2017[1]). However, there was no consensus on decreases in January precipation for RCPs 2.6 and 8.5, possibly a consequence that fewer statistically-downscaled projections were available for these scenarios (17 GCMs for RCP 8.5 and 15 GCMs for RCP 2.6).

According to the three CRPs, precipitation could decrease in June for some sections of Sri Lanka (and for most of Sri Lanka according to RCP 8.5).

In other months, there was no consensus among the GCMs. It is possible that the variation among GCMs (with fewer than 33% agreeing on increases or decreases of future precipitation) reflects the future inter-annual variation that could be expected. This pattern would agree with the pattern of increased variation in precipitation observed in data collected from meteorological stations in Sri Lanka (*e.g.*, Jayatillake *et al.* 2005 and Eriyagama *et al.* 2010 cited in Muthuwatta *et al.* 2017).

[1] Shiromani Jayawardena, Thanuja Dharshika and Roshan Herath. 2017. Observed Trends, Future Climate Change Projections and Possible Impacts for Sri Lanka. *NeelaHaritha Climate Change Magazine of Sri Lanka* 2:144-151. Note that these results were obtained from a different data set of six General Circulation Models downscaled to a resolution of 0.25 degrees and downloaded from NASA's NEX-GDDP portal

**Figure 1.1.** Counts of General Circulation Models that project monthly increases in precipitation by the 2050s compared to the baseline centred on 1975. The colour scheme corresponds to the likelihood scale recommended for the fifth Assessment Report (Mastrandea *et al*. 2011), blue colours indicating that increases are likely and red-yellowish colours indicating that increases are unlikely. Count ranges are in square brackets. The magnitude of precipitation changes can be inferred from Appendix I.



Analyses with a subset of bioclimatic variables showed (Figure 1.2; a more thorough analysis of bioclimatic variables is available from a separate report[2]) that it is likely that BIO1 (mean annual temeprature), BIO4 (temperature seasonality), BIO5 (maximum temperature of the warmest month), BIO6 (minimum temperature of the coldest month), BIO8 (mean temperature of the wettest quarter), BIO9 (mean temperature of the driest quarter), BIO10 (mean temperature of the warmest quarter) and BIO11 (mean temperature of the coldest quarter) will increase and that BIO2 (mean diurnal range) and BIO3 (isothermality) will decrease. The temperature trends agree with a recent analysis of a 1980 – 2015 time series sequence from 19 Sri Lankan meteorological stations showing an increase of annual mean minimum temperatures and a decrease of the diurnal range (Jayawardena *et al.* 2017).

It is noteworthy that seasonality is projected to increase both for temperature (BIO4) and precipitation (BIO15) in the south-eastern parts of Sri Lanka, a possible reflection of potential increases in interannual variation.

There is less consensus for bioclimatic variables calculated from precipitation data such as BIO18 (precipitation of the warmest quarter) and BIO19 (precipitation of the coldest quarter), although for most of Sri Lanka (especially the south-eastern parts) it is likely that annual precipitation (BIO12) will increase (see also Figure 1.3). The 1980 – 2015 time series analysed by the CCCS (Jayawardena *et al.* 2017) showed increasing trends in precipitation indices in over 80% of meteorological stations. The time series data also showed a significant increase in precipitation of the day and the five consecutive days with the highest amount of precipitation.

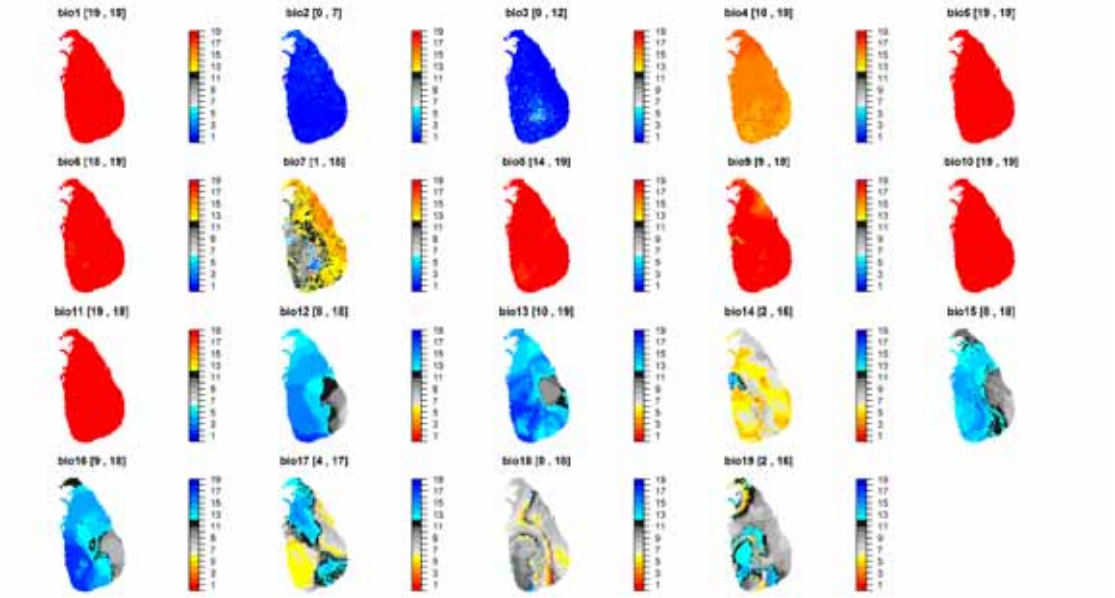
Given the consensus on temperature increases, it is possible that changes in potential evapotranspiration may offset the increases in precipitation (F. Sinclair, pers. comm.). Potential evapotranspiration would be expected to increase further with increased wind, such as recently observed close to the Knuckles Reserve.

Based on crop modelling with the DSSAT software for five GCMs for CRP 8.5, Zubair *et al.* (2013) projected that rice yields would decrease by 10 percent for two GCMs and slightly increase for three GCMs, resulting from differences in rainfall variation among the GCMs. They thus recommended to use shorter duration rice varieties. These crop modelling results emphasize the importance of dealing with precipation variability in projecting crop yields. They further emphasize the rationale for investing in irrigation infrastructure in lowland areas (see also Gunda *et al.* 2017 who predict increases in water deficits of up to 20% in the intermediate and dry zones of Sri Lanka where more than 80% of its rice production is concentrated.).

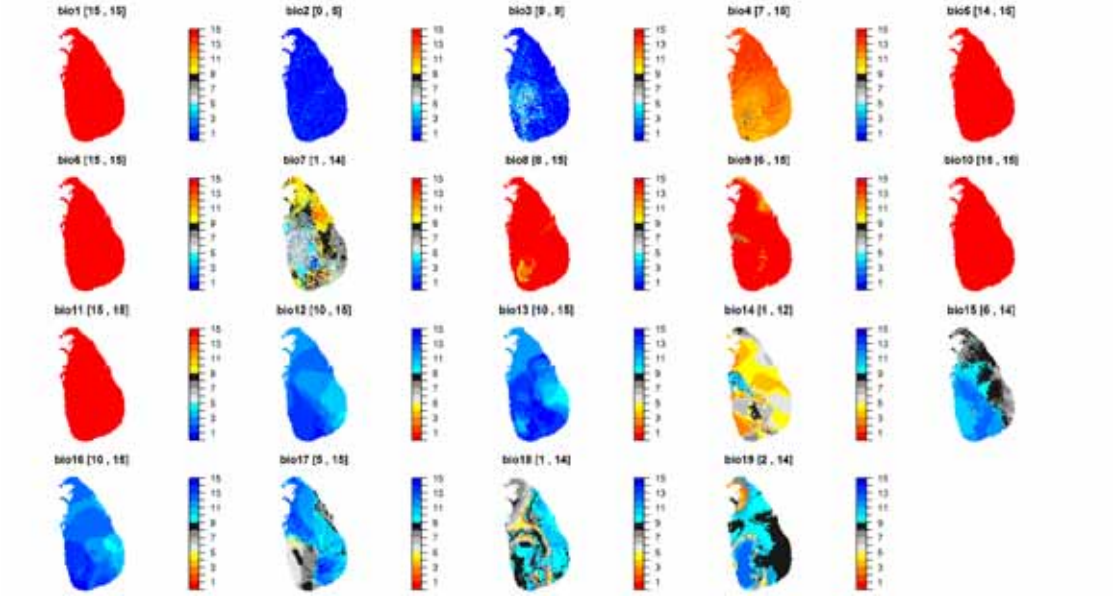
[2] This report is available from XXXX. Given the importance of precipitation changes for the overall project, the focus of this report is on monthly precipitation.

**Figure 1.2.** Counts of General Circulation Models that project monthly increases in bioclimatic variables by the 2050s compared to the baseline centred on 1975. The major changes in the colour schemes correspond to the likelihood scale recommended for the fifth Assessment Report of the IPCC (Mastrandea *et al.* 2011; see text). For BIO1 to BIO11, yellow-red colours indicate that increases are likely. For BIO12 to BIO19, blue colours indicate that increases are likely. Count ranges are in square brackets.

**RCP 4.5**



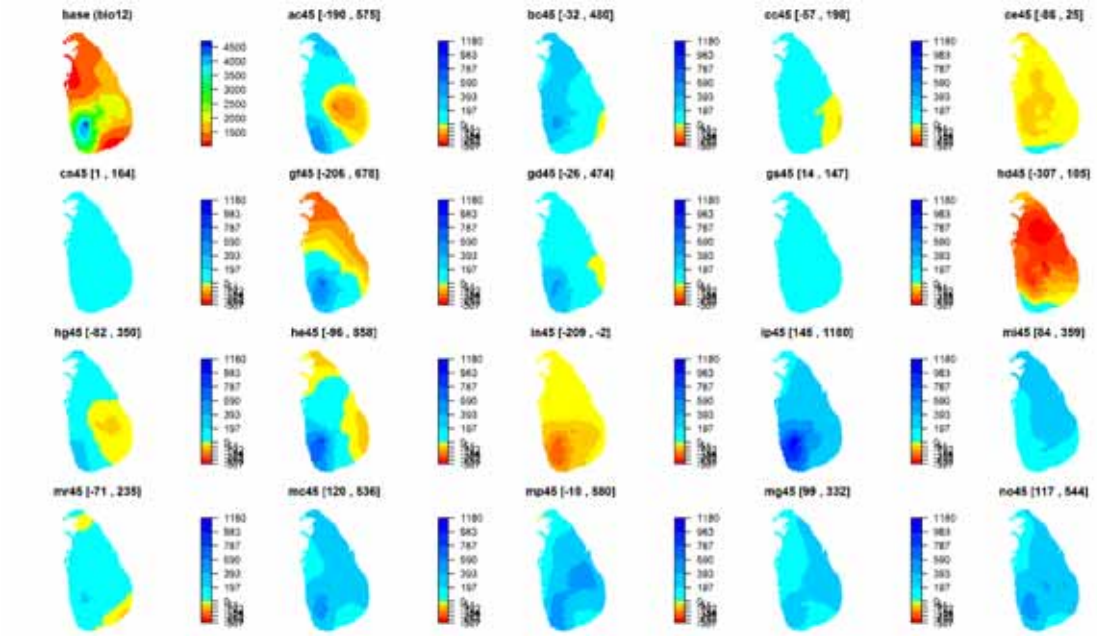
**RCP 2.6**



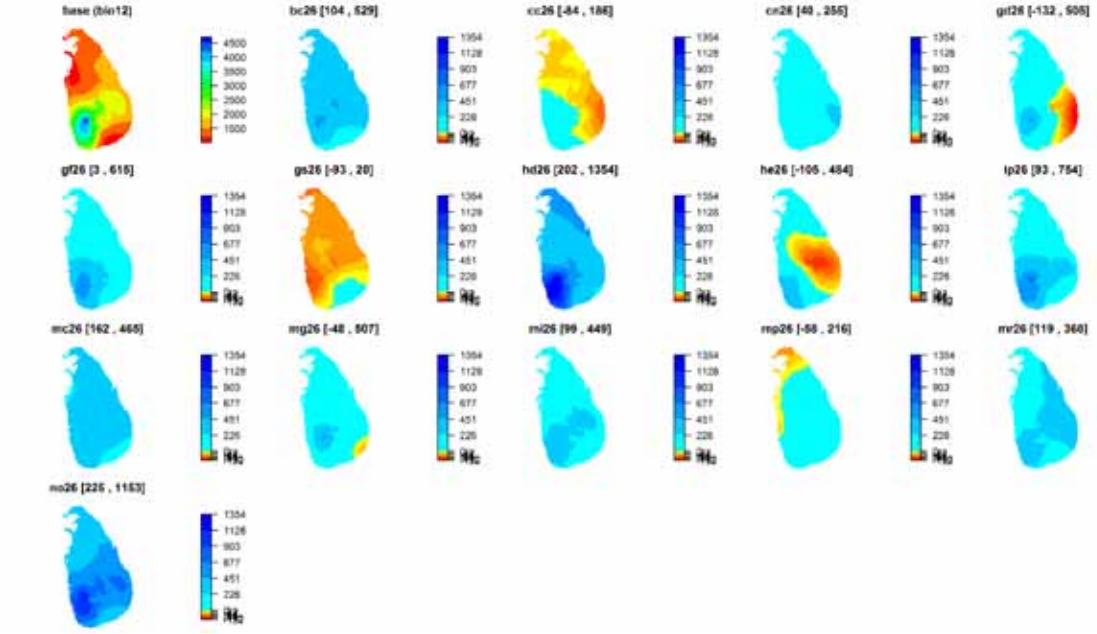
**Bio1**: mean annual temperature; **Bio2**: mean diurnal range; **Bio3**: isothermality; **Bio4**: temperature seasonality (standard deviation of monthly values); **Bio5**: maximum temperature of the warmest month; **Bio6**: minimum temperature of the coldest month; **Bio7**: annual temperature range; **Bio8**: mean temperature of the wettest quarter; **Bio9**: mean temperature of the driest quarter; **Bio10**: mean temperature of the warmest quarter; **Bio11**: mean temperature of the coolest quarter; **Bio12**: mean annual rainfall; **Bio13**: rainfall of the wettest month; **Bio14**: rainfall of the driest month; **Bio15**: rainfall seasonality (standard deviation of monthly values); **Bio16**: rainfall of the wettest quarter; **Bio17**: rainfall of the driest quarter; **Bio18**: rainfall of the warmest quarter; **Bio19**: rainfall of the coldest quarter

**Figure 1.3.** Changes in annual precipitation (bioclimatic variable BIO12). Values for future climate models show the difference between future (2050) and baseline (1975) precipitation, with the range (minimum, maximum) shown between square brackets. Model abbreviations are available from the methods section.

**RCP 4.5 (19 GCMs)**




**RCP 2.6 (15 GCMs)**



## 2. Projected changes in monthly precipitation for the project sites for a medium emissions scenario (RCP 4.5)

In this section, projected climate change effects are investigated for a set of 26 locations representing the range in (bio)climatic conditions in the project area. Graphs and tables in this section are sorted by the annual precipitation (see also Methods section). The eight locations in the upland catchment areas (Naula, Pallepola, Matale, Yatawatta, Ukuwela, Laggala-Pallegama, Ambanganga Korale and Rattota) are the only locations in the intermediate climate zone of Sri Lanka that currently receives between 1750 and 2500 mm per annum. The other locations are in the dry climatic zone.

As in the previous section, the likelihood scale recommended by the IPCC (Mastrandea *et al.* 2011) has been adopted. This implies that results are interpreted as **likely** in case a minimum of 66% of models predict the same trend, and **unlikely** in case less than 33% of models predict the trend (for the 19 GCMs available for RCP 4.5, this translates in a minimum of 13 [> 12.67] models to reflect likely changes and a maximum of 6 [< 6.33] models to reflect unlikely changes[3]).

Special attention is given to months where the major foodcrops of rice and maize are sown and grown according to the FAO's Global Information and Early Warning System: April – May (sowing period during *Yala* season), June – July (growing period during *Yala* season), October – November (sowing period during *Maha* season) and December – January (growing period during *Maha* season). The *Yala* season corresponds to the South-west monsoon of May to September, whereas the *Maha* season correspons to the North-east monsoon of December to February.

January precipitation is likely to decrease (Figure and Table 2.1), which would influence the rice and maize growing periods during the *Maha* season.

In most locations, including upland and lowland project areas, the May precipitation is projected to decrease in the rice and maize sowing periods of the *Yala* season (Figure and Table 2.5).

July (growing period during the *Yala* season) precipitation is projected to increase, except for mainly upland locations (Figure and Tables 2.7). However, absolute magnitudes of precipitation increases are relatively small, so that lowland locations will continue to receive relatively small amounts of precipitation (a pattern important for planning irrigation schemes).

October precipitation (sowing period during *Maha* season) is projected to increase (Figure and Tables 2.10).

Where there was no consensus among models, it is possible that this lack of consensus agrees with interannual variability that has been reported to increase (see Section 1).

The higher precipitation expected for August to October is relevant for planning flood and erosion controlling measures, especially in highland areas where baseline precipitation already is high.

[3] Applying these thresholds to the number of models counting increases in precipitation, a unlikely change in increase of precipitation (maximum 6 models) was interpreted as a likely change in decrease of precipitation (minimum 13 models).

**Figure 2.1.** Projected changes in precipitation for January. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

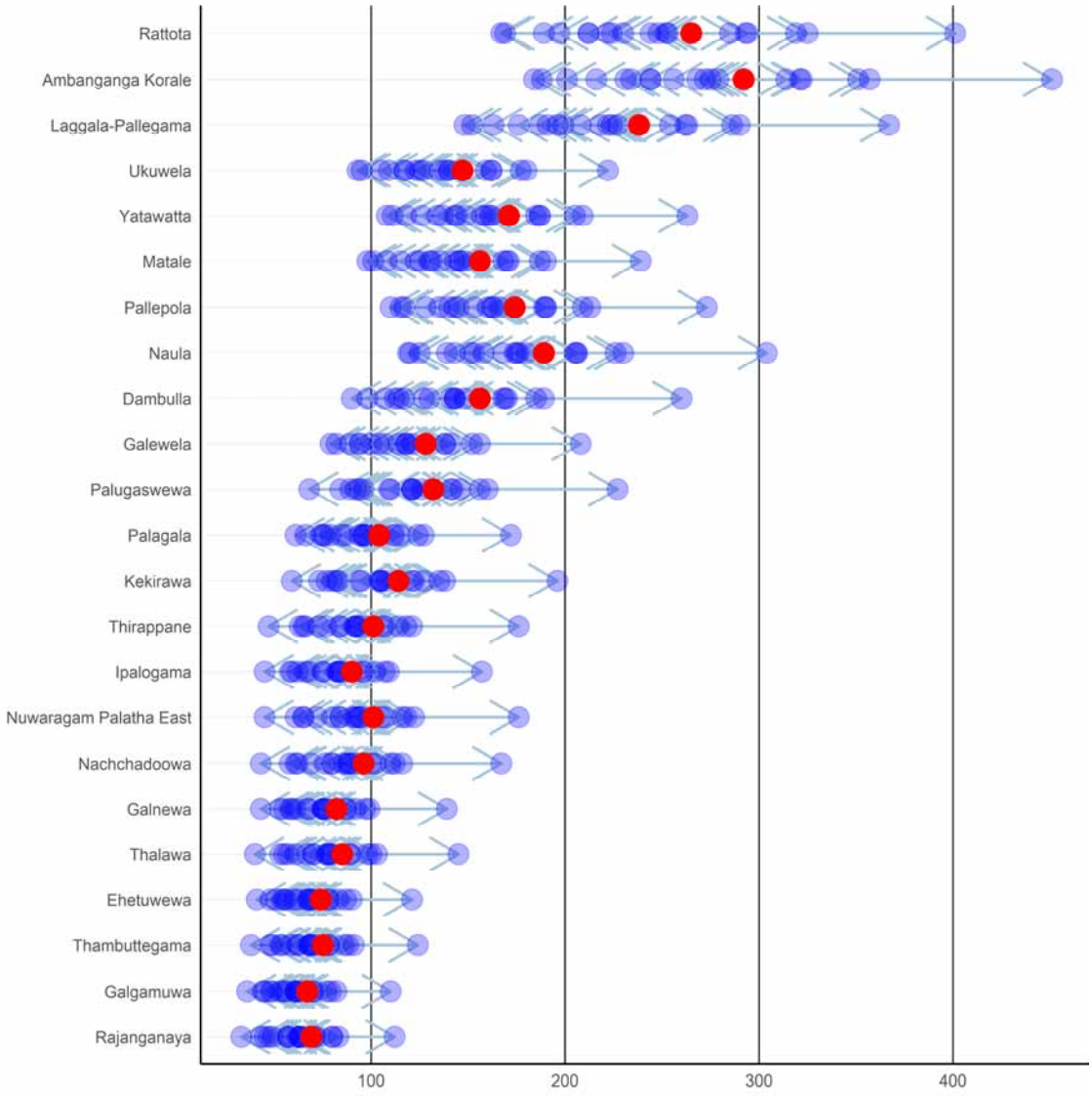


**Table 2.1.** Summary statistics of projected changes in January precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 69 | 63.16 | 33 | 57.0 | 63 | 64.0 | 112 | | YES |
| Galgamuwa | 67 | 62.16 | 36 | 55.0 | 61 | 63.0 | 110 | | YES |
| Thambuttegama | 75 | 69.11 | 38 | 62.0 | 68 | 70.0 | 124 | | YES |
| Ehetuwewa | 74 | 68.68 | 41 | 60.0 | 68 | 70.0 | 121 | | YES |
| Thalawa | 85 | 78.32 | 40 | 70.0 | 78 | 80.0 | 145 | | YES |
| Galnewa | 82 | 75.89 | 43 | 67.0 | 75 | 77.0 | 139 | | YES |
| Nachchadoowa | 96 | 88.32 | 43 | 80.0 | 88 | 91.0 | 167 | | YES |
| Nuwaragam Palatha East | 101 | 92.89 | 45 | 84.0 | 92 | 95.0 | 176 | | YES |
| Ipalogama | 90 | 83.68 | 45 | 75.0 | 83 | 85.0 | 157 | | YES |
| Thirappane | 101 | 92.84 | 47 | 84.0 | 92 | 95.0 | 176 | | YES |
| Kekirawa | 114 | 105.74 | 59 | 94.0 | 105 | 108.0 | 196 | | YES |
| Palagala | 104 | 97.05 | 61 | 85.0 | 96 | 98.0 | 172 | | YES |
| Palugaswewa | 132 | 122.32 | 68 | 109.0 | 121 | 126.0 | 227 | | YES |
| Galewela | 128 | 119.53 | 79 | 104.0 | 118 | 121.0 | 208 | | YES |
| Dambulla | 156 | 144.95 | 90 | 127.0 | 143 | 148.0 | 260 | | YES |
| Naula | 189 | 176.74 | 119 | 153.0 | 174 | 180.0 | 304 | | YES |
| Pallepola | 174 | 163.21 | 110 | 143.0 | 160 | 166.0 | 273 | | YES |
| Matale | 156 | 146.00 | 98 | 130.0 | 143 | 148.0 | 239 | | YES |
| Yatawatta | 171 | 160.26 | 108 | 143.0 | 157 | 162.0 | 263 | | YES |
| Ukuwela | 147 | 138.21 | 93 | 123.0 | 135 | 140.0 | 222 | | YES |
| Laggala-Pallegama | 238 | 222.79 | 148 | 196.0 | 218 | 227.0 | 367 | | YES |
| Ambanganga Korale | 292 | 274.11 | 184 | 244.0 | 268 | 279.0 | 451 | | YES |
| Rattota | 265 | 249.26 | 167 | 222.0 | 244 | 253.0 | 401 | | YES |

**Figure 2.2.** Projected changes in precipitation for February. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

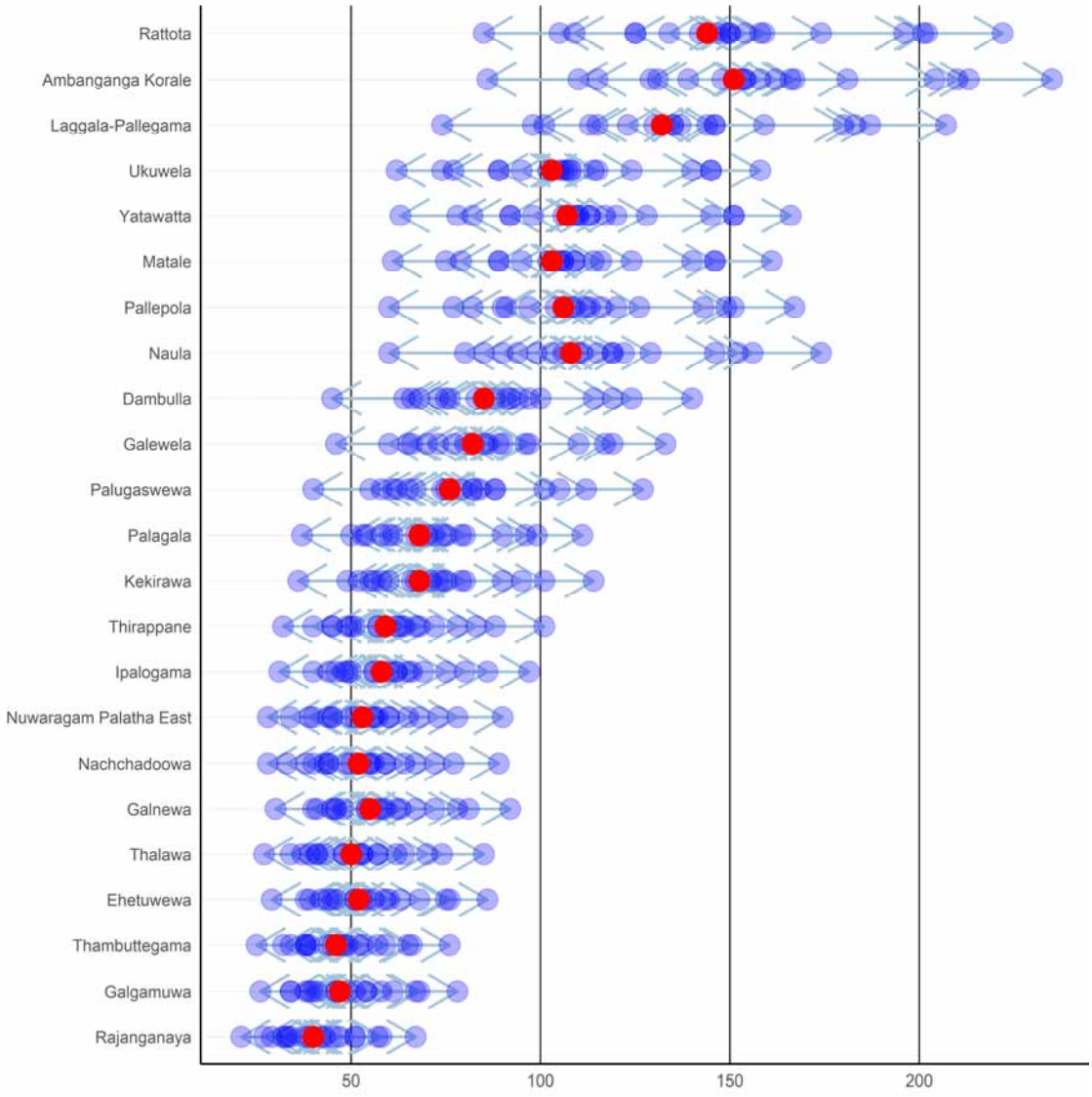


**Table 2.2.** Summary statistics of projected changes in February precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 40 | 41.42 | 21 | 34.0 | 40 | 45.0 | 67 | | |
| Galgamuwa | 47 | 49.00 | 26 | 41.0 | 47 | 54.0 | 78 | | |
| Thambuttegama | 46 | 47.63 | 25 | 39.0 | 47 | 52.0 | 76 | | |
| Ehetuwewa | 52 | 54.47 | 29 | 46.0 | 53 | 59.0 | 86 | | |
| Thalawa | 50 | 51.84 | 27 | 43.0 | 52 | 57.0 | 85 | | |
| Galnewa | 55 | 57.53 | 30 | 48.0 | 57 | 62.0 | 92 | | |
| Nachchadoowa | 52 | 53.79 | 28 | 44.0 | 55 | 59.0 | 89 | | |
| Nuwaragam Palatha East | 53 | 54.68 | 28 | 45.0 | 56 | 60.0 | 90 | | |
| Ipalogama | 58 | 60.11 | 31 | 50.0 | 60 | 65.0 | 97 | | |
| Thirappane | 59 | 61.68 | 32 | 51.0 | 62 | 67.0 | 101 | | |
| Kekirawa | 68 | 71.11 | 36 | 60.0 | 71 | 75.0 | 114 | | |
| Palagala | 68 | 71.26 | 37 | 61.0 | 70 | 75.0 | 111 | | |
| Palugaswewa | 76 | 79.21 | 40 | 67.0 | 79 | 84.0 | 127 | | |
| Galewela | 82 | 86.37 | 46 | 77.0 | 85 | 90.0 | 133 | | |
| Dambulla | 85 | 89.16 | 45 | 76.0 | 88 | 94.0 | 140 | | |
| Naula | 108 | 114.21 | 60 | 103.0 | 111 | 119.0 | 174 | | |
| Pallepola | 106 | 111.63 | 60 | 104.0 | 109 | 116.0 | 167 | | |
| Matale | 103 | 109.05 | 61 | 102.0 | 106 | 114.0 | 161 | | |
| Yatawatta | 107 | 112.84 | 63 | 106.0 | 110 | 117.0 | 166 | | |
| Ukuwela | 103 | 108.58 | 62 | 102.0 | 107 | 114.0 | 158 | | |
| Laggala-Pallegama | 132 | 139.21 | 74 | 130.0 | 135 | 146.0 | 207 | | |
| Ambanganga Korale | 151 | 158.68 | 86 | 148.0 | 154 | 166.0 | 235 | | |
| Rattota | 144 | 151.95 | 85 | 142.0 | 150 | 158.0 | 222 | | |

**Figure 2.3.** Projected changes in precipitation for March. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

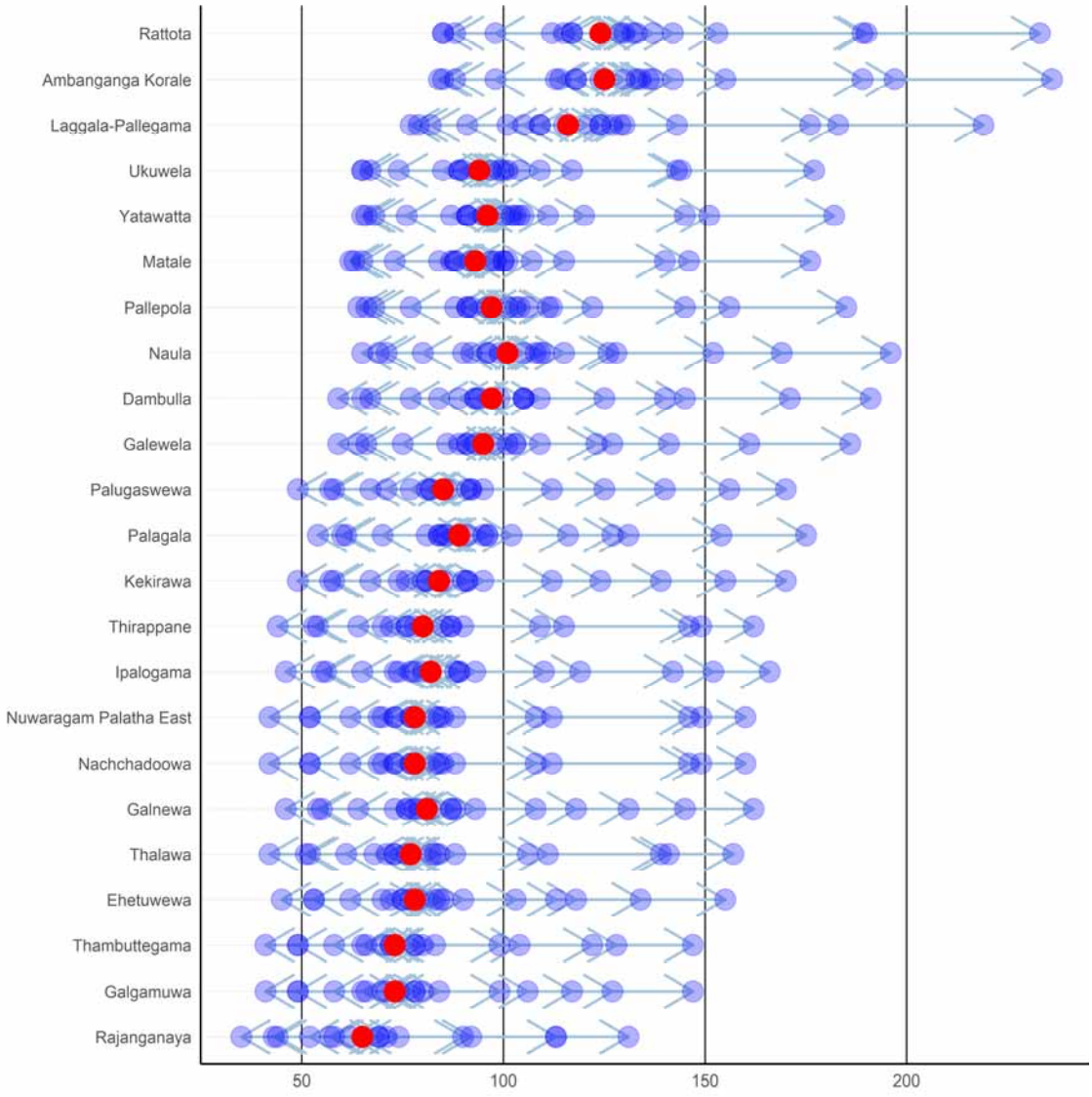


**Table 2.3.** Summary statistics of projected changes in March precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 65 | 72.00 | 35 | 62.0 | 65 | 71.0 | 131 | | |
| Galgamuwa | 73 | 80.63 | 41 | 70.0 | 74 | 80.0 | 147 | | |
| Thambuttegama | 73 | 80.74 | 41 | 70.0 | 73 | 80.0 | 147 | | |
| Ehetuwewa | 78 | 85.58 | 45 | 75.0 | 79 | 85.0 | 155 | | |
| Thalawa | 77 | 86.05 | 42 | 73.0 | 77 | 84.0 | 157 | | |
| Galnewa | 81 | 89.58 | 46 | 76.0 | 82 | 88.0 | 162 | | |
| Nachchadoowa | 78 | 87.47 | 42 | 73.0 | 77 | 85.0 | 160 | | |
| Nuwaragam Palatha East | 78 | 87.47 | 42 | 73.0 | 77 | 85.0 | 160 | | |
| Ipalogama | 82 | 91.26 | 46 | 77.0 | 82 | 89.0 | 166 | | |
| Thirappane | 80 | 89.32 | 44 | 76.0 | 80 | 87.0 | 162 | | |
| Kekirawa | 84 | 93.42 | 49 | 80.0 | 85 | 91.0 | 170 | | |
| Palagala | 89 | 97.26 | 54 | 84.0 | 91 | 96.0 | 175 | | |
| Palugaswewa | 85 | 93.84 | 49 | 81.0 | 86 | 92.0 | 170 | | |
| Galewela | 95 | 103.47 | 59 | 91.0 | 98 | 103.0 | 186 | | |
| Dambulla | 97 | 106.11 | 59 | 93.0 | 99 | 105.0 | 191 | | |
| Naula | 101 | 109.26 | 65 | 96.0 | 105 | 110.0 | 196 | | |
| Pallepola | 97 | 104.11 | 64 | 91.0 | 101 | 106.0 | 185 | | |
| Matale | 93 | 99.05 | 62 | 88.0 | 97 | 100.0 | 176 | | |
| Yatawatta | 96 | 102.79 | 65 | 91.0 | 100 | 104.0 | 182 | | |
| Ukuwela | 94 | 100.47 | 65 | 89.0 | 97 | 101.0 | 177 | | |
| Laggala-Pallegama | 116 | 123.37 | 77 | 109.0 | 121 | 127.0 | 219 | | |
| Ambanganga Korale | 125 | 133.21 | 84 | 118.0 | 130 | 136.0 | 236 | | |
| Rattota | 124 | 132.05 | 85 | 117.0 | 129 | 133.0 | 233 | | |

**Figure 2.4.** Projected changes in precipitation for April. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

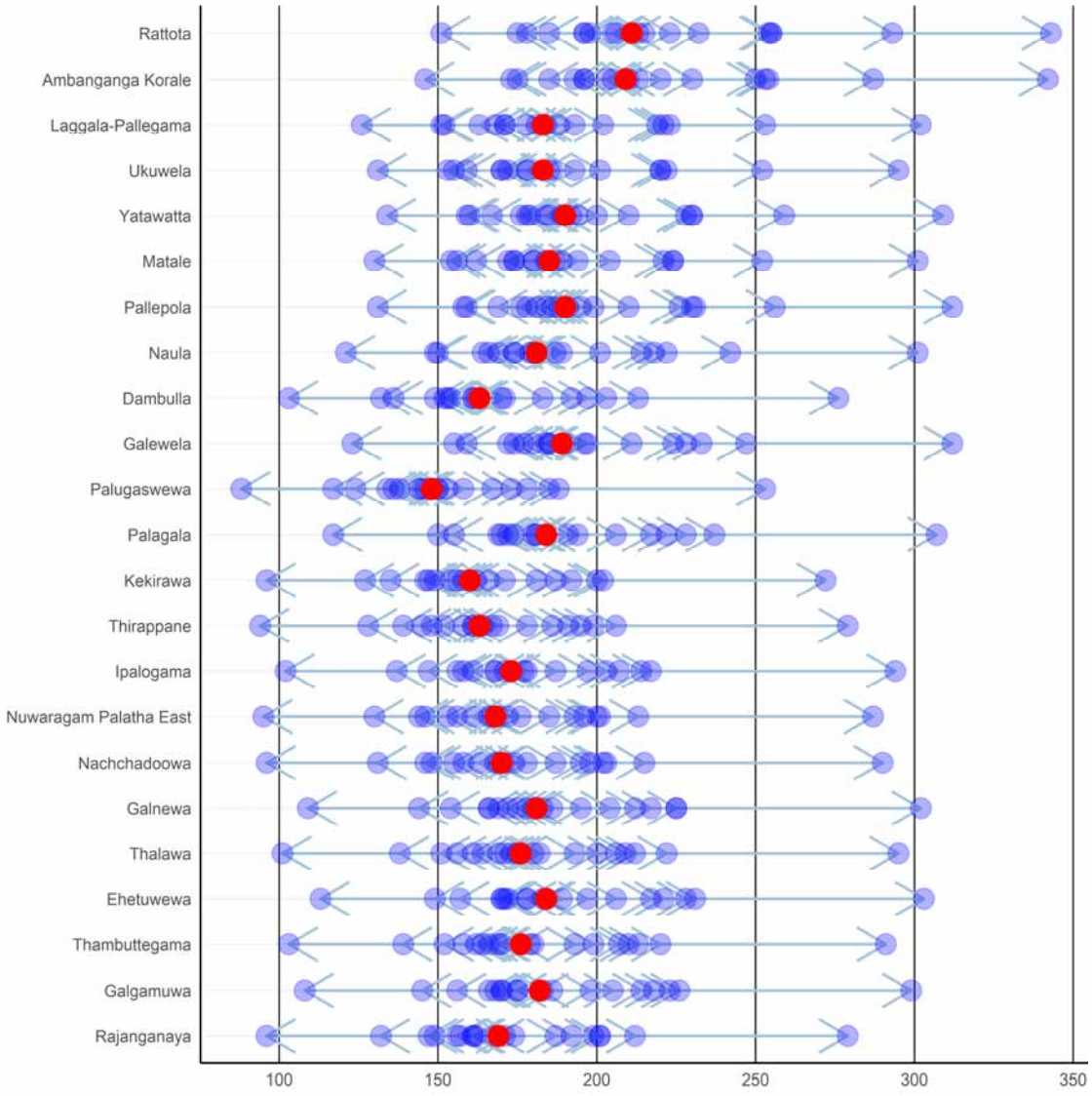


**Table 2.4.** Summary statistics of projected changes in April precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| **Rajanganaya** | 169 | 173.95 | 96 | 161.0 | 168 | 187.0 | 279 | | |
| **Galgamuwa** | 182 | 187.74 | 108 | 170.0 | 182 | 198.0 | 299 | | |
| **Thambuttegama** | 176 | 181.63 | 103 | 166.0 | 176 | 193.0 | 291 | | |
| **Ehetuwewa** | 184 | 190.37 | 113 | 172.0 | 183 | 197.0 | 303 | | |
| **Thalawa** | 176 | 182.00 | 101 | 169.0 | 175 | 193.0 | 295 | | |
| **Galnewa** | 181 | 187.47 | 109 | 172.0 | 180 | 195.0 | 302 | | |
| **Nachchadoowa** | 170 | 176.16 | 96 | 163.0 | 171 | 187.0 | 290 | | |
| **Nuwaragam Palatha East** | 168 | 174.21 | 95 | 161.0 | 169 | 185.0 | 287 | | |
| **Ipalogama** | 173 | 179.74 | 102 | 168.0 | 173 | 187.0 | 294 | | |
| **Thirappane** | 163 | 169.47 | 94 | 158.0 | 164 | 178.0 | 279 | | |
| **Kekirawa** | 160 | 166.37 | 96 | 154.0 | 160 | 171.0 | 272 | | |
| **Palagala** | 184 | 191.32 | 117 | 174.0 | 181 | 194.0 | 307 | | |
| **Palugaswewa** | 148 | 154.05 | 88 | 144.0 | 150 | 158.0 | 253 | | |
| **Galewela** | 189 | 196.42 | 123 | 180.0 | 185 | 197.0 | 312 | | |
| **Dambulla** | 163 | 170.05 | 103 | 154.0 | 162 | 171.0 | 276 | | |
| **Naula** | 181 | 188.47 | 121 | 174.0 | 180 | 189.0 | 301 | | |
| **Pallepola** | 190 | 197.89 | 131 | 181.0 | 188 | 199.0 | 312 | | |
| **Matale** | 185 | 192.74 | 130 | 174.0 | 184 | 194.0 | 301 | | |
| **Yatawatta** | 190 | 198.05 | 134 | 179.0 | 189 | 200.0 | 309 | | |
| **Ukuwela** | 183 | 190.68 | 131 | 172.0 | 183 | 193.0 | 295 | | |
| **Laggala-Pallegama** | 183 | 191.00 | 126 | 171.0 | 183 | 193.0 | 302 | | |
| **Ambanganga Korale** | 209 | 217.89 | 146 | 196.0 | 209 | 220.0 | 342 | | |
| **Rattota** | 211 | 220.21 | 151 | 198.0 | 211 | 223.0 | 343 | | |

**Figure 2.5.** Projected changes in precipitation for May. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

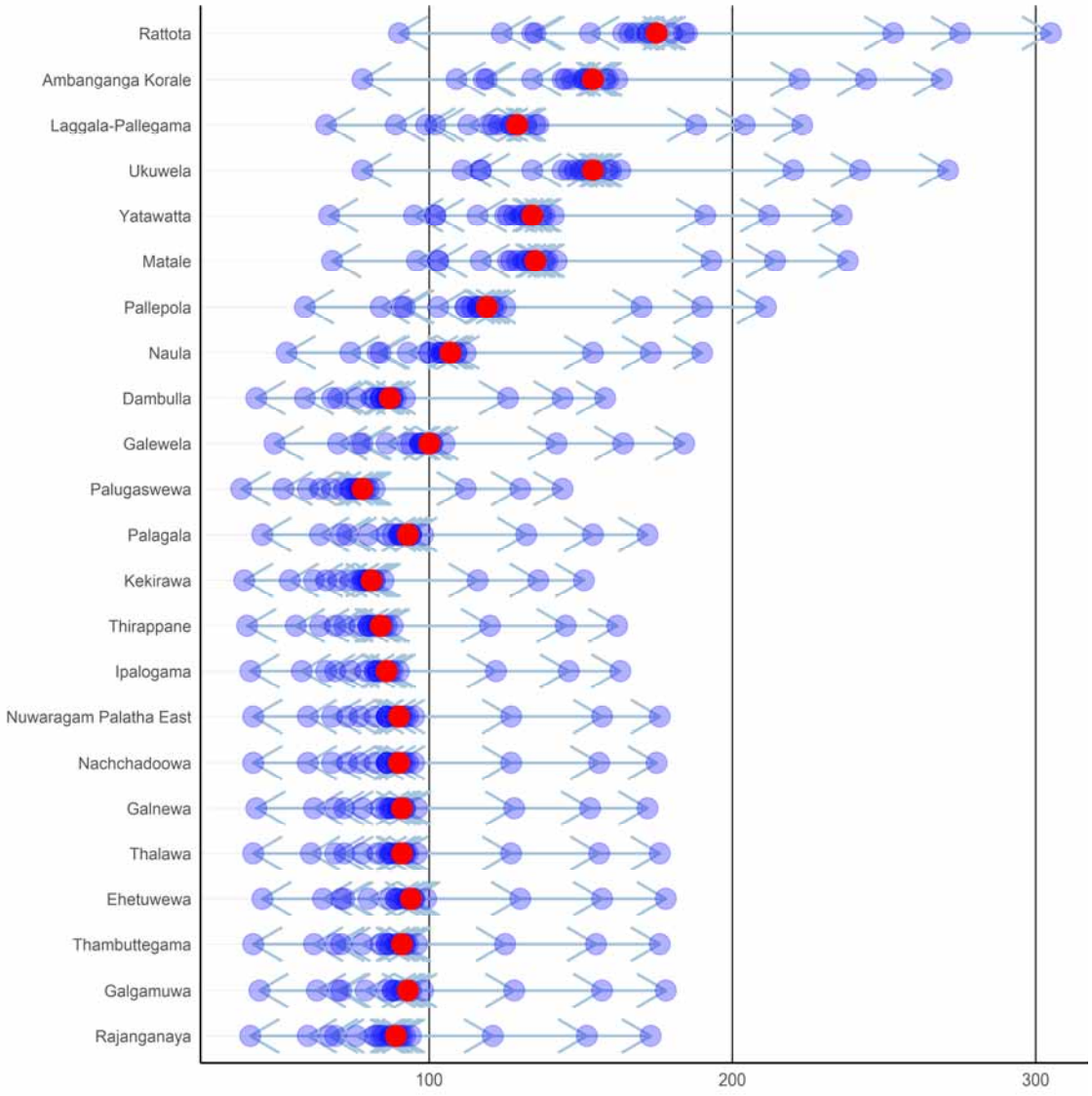


**Table 2.5.** Summary statistics of projected changes in May precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 89 | 90.74 | 41 | 83.0 | 87 | 90.0 | 173 | | |
| Galgamuwa | 93 | 94.53 | 44 | 88.0 | 91 | 93.0 | 178 | | YES |
| Thambuttegama | 91 | 92.84 | 42 | 86.0 | 89 | 92.0 | 176 | | |
| Ehetuwewa | 94 | 95.53 | 45 | 89.0 | 92 | 94.0 | 178 | | YES |
| Thalawa | 91 | 92.89 | 42 | 86.0 | 88 | 92.0 | 176 | | |
| Galnewa | 91 | 92.63 | 43 | 86.0 | 88 | 91.0 | 172 | | YES |
| Nachchadoowa | 90 | 92.26 | 42 | 86.0 | 86 | 91.0 | 175 | | |
| Nuwaragam Palatha East | 90 | 92.37 | 42 | 86.0 | 86 | 91.0 | 176 | | |
| Ipalogama | 86 | 87.89 | 41 | 82.0 | 83 | 86.0 | 163 | | YES |
| Thirappane | 84 | 86.05 | 40 | 80.0 | 81 | 84.0 | 162 | | YES |
| Kekirawa | 81 | 82.63 | 39 | 77.0 | 79 | 81.0 | 151 | | YES |
| Palagala | 93 | 94.68 | 45 | 88.0 | 90 | 94.0 | 172 | | |
| Palugaswewa | 78 | 79.58 | 38 | 74.0 | 76 | 78.0 | 144 | | YES |
| Galewela | 100 | 101.74 | 49 | 94.0 | 97 | 100.0 | 184 | | YES |
| Dambulla | 87 | 88.84 | 43 | 82.0 | 84 | 88.0 | 158 | | |
| Naula | 107 | 108.63 | 53 | 100.0 | 104 | 107.0 | 190 | | YES |
| Pallepola | 119 | 120.68 | 59 | 112.0 | 116 | 119.0 | 211 | | YES |
| Matale | 135 | 136.79 | 68 | 127.0 | 132 | 135.0 | 238 | | YES |
| Yatawatta | 134 | 135.63 | 67 | 126.0 | 131 | 134.0 | 236 | | YES |
| Ukuwela | 154 | 156.47 | 78 | 146.0 | 151 | 155.0 | 271 | | |
| Laggala-Pallegama | 129 | 131.11 | 66 | 121.0 | 127 | 129.0 | 223 | | YES |
| Ambanganga Korale | 154 | 156.26 | 78 | 145.0 | 151 | 154.0 | 269 | | YES |
| Rattota | 175 | 178.11 | 90 | 166.0 | 172 | 175.0 | 305 | | YES |

**Figure 2.6.** Projected changes in precipitation for June. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

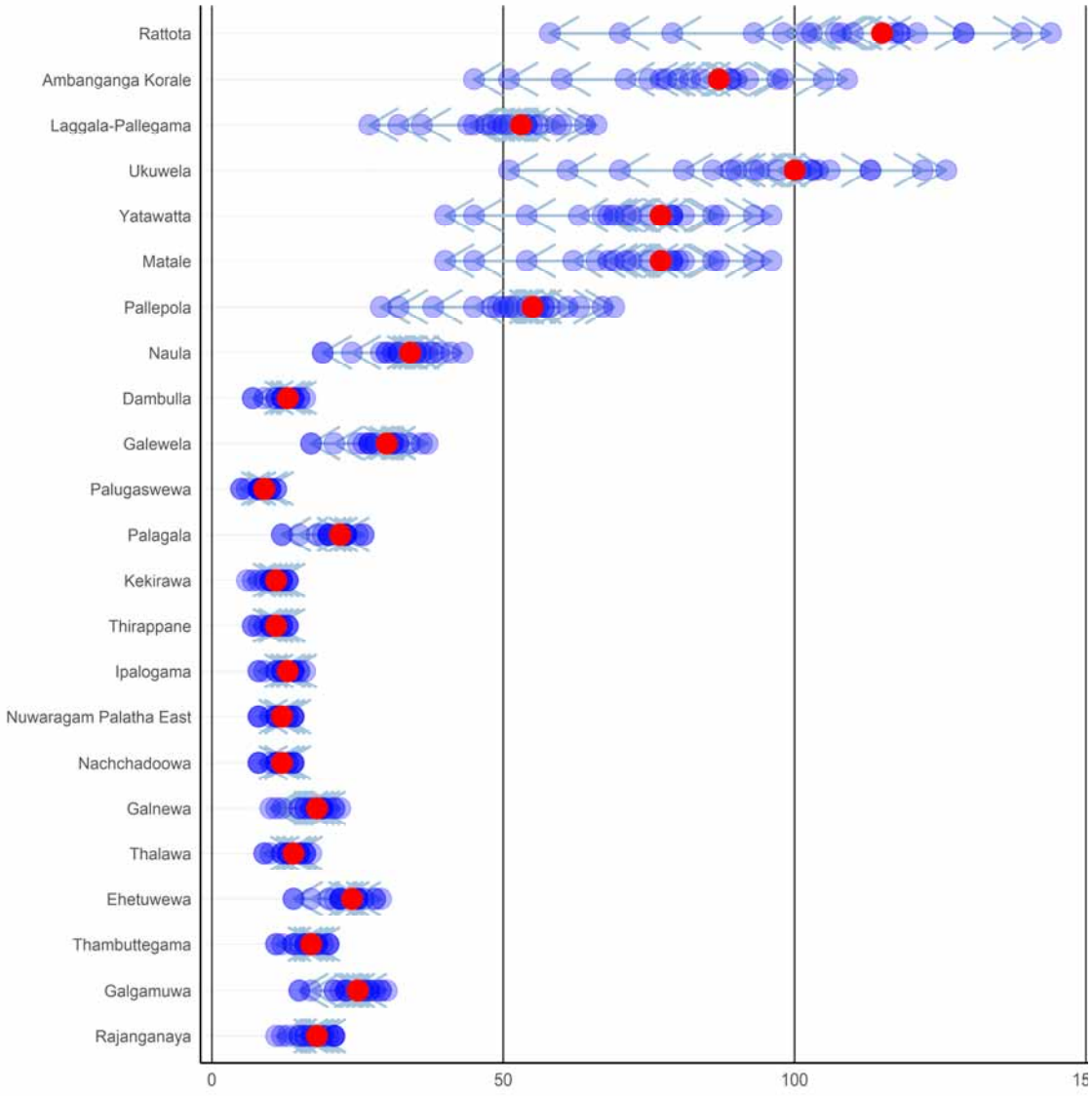


**Table 2.6.** Summary statistics of projected changes in June precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 18 | 17.26 | 11 | 16.0 | 18 | 19.0 | 21 | | |
| Galgamuwa | 25 | 23.79 | 15 | 23.0 | 25 | 26.0 | 30 | | |
| Thambuttegama | 17 | 16.26 | 11 | 16.0 | 17 | 18.0 | 20 | | |
| Ehetuwewa | 24 | 22.79 | 14 | 22.0 | 24 | 25.0 | 29 | | |
| Thalawa | 14 | 13.47 | 9 | 13.0 | 14 | 15.0 | 17 | | |
| Galnewa | 18 | 17.11 | 10 | 16.0 | 18 | 19.0 | 22 | | |
| Nachchadoowa | 12 | 11.58 | 8 | 11.0 | 12 | 12.0 | 14 | | YES |
| Nuwaragam Palatha East | 12 | 11.58 | 8 | 11.0 | 12 | 12.0 | 14 | | YES |
| Ipalogama | 13 | 12.42 | 8 | 12.0 | 13 | 14.0 | 16 | | |
| Thirappane | 11 | 10.58 | 7 | 10.0 | 11 | 11.0 | 13 | | YES |
| Kekirawa | 11 | 10.53 | 6 | 10.0 | 11 | 12.0 | 13 | | |
| Palagala | 22 | 20.63 | 12 | 20.0 | 22 | 23.0 | 26 | | |
| Palugaswewa | 9 | 8.53 | 5 | 8.0 | 9 | 9.0 | 11 | | YES |
| Galewela | 30 | 28.37 | 17 | 27.0 | 30 | 31.0 | 37 | | |
| Dambulla | 13 | 12.26 | 7 | 12.0 | 13 | 13.0 | 16 | | YES |
| Naula | 34 | 32.53 | 19 | 31.0 | 34 | 35.0 | 43 | | |
| Pallepola | 55 | 52.16 | 29 | 50.0 | 54 | 57.0 | 69 | | |
| Matale | 77 | 72.63 | 40 | 69.0 | 75 | 79.0 | 96 | | |
| Yatawatta | 77 | 72.68 | 40 | 69.0 | 75 | 79.0 | 96 | | |
| Ukuwela | 100 | 94.89 | 51 | 90.0 | 97 | 103.0 | 126 | | |
| Laggala-Pallegama | 53 | 50.00 | 27 | 48.0 | 51 | 54.0 | 66 | | |
| Ambanganga Korale | 87 | 82.05 | 45 | 78.0 | 84 | 89.0 | 109 | | |
| Rattota | 115 | 108.32 | 58 | 103.0 | 110 | 118.0 | 144 | | |

**Figure 2.7.** Projected changes in precipitation for July. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

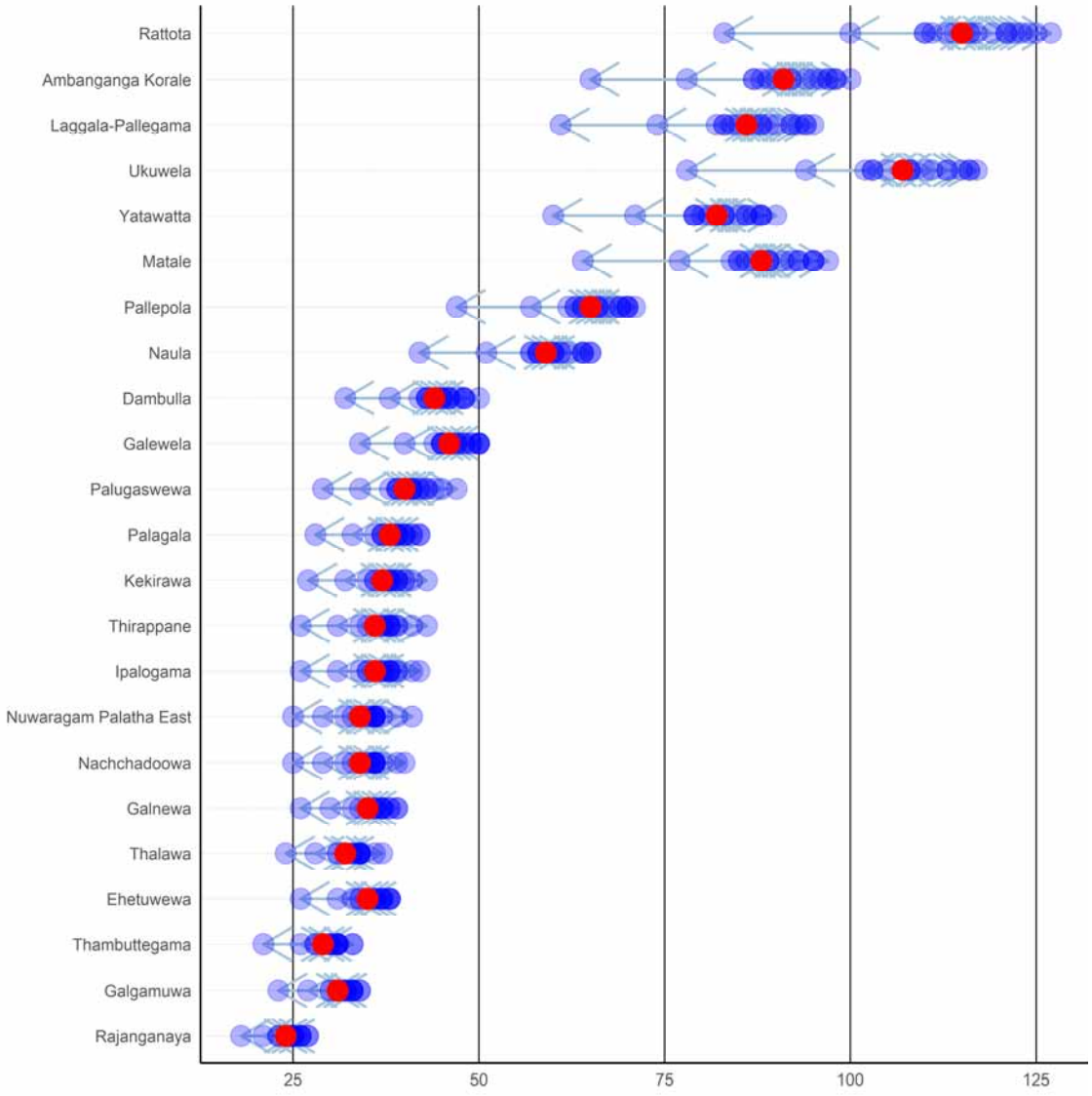


**Table 2.7.** Summary statistics of projected changes in July precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 24 | 24.47 | 18 | 24.0 | 25 | 25.0 | 27 | YES | |
| Galgamuwa | 31 | 31.32 | 23 | 31.0 | 32 | 33.0 | 34 | YES | |
| Thambuttegama | 29 | 29.58 | 21 | 29.0 | 30 | 31.0 | 33 | YES | |
| Ehetuwewa | 35 | 35.32 | 26 | 35.0 | 36 | 37.0 | 38 | YES | |
| Thalawa | 32 | 32.63 | 24 | 32.0 | 33 | 34.0 | 37 | YES | |
| Galnewa | 35 | 35.42 | 26 | 35.0 | 36 | 37.0 | 39 | YES | |
| Nachchadoowa | 34 | 34.68 | 25 | 34.0 | 36 | 36.0 | 40 | YES | |
| Nuwaragam Palatha East | 34 | 34.74 | 25 | 34.0 | 36 | 36.0 | 41 | YES | |
| Ipalogama | 36 | 36.58 | 26 | 36.0 | 37 | 38.0 | 42 | YES | |
| Thirappane | 36 | 36.68 | 26 | 36.0 | 37 | 38.0 | 43 | YES | |
| Kekirawa | 37 | 37.37 | 27 | 37.0 | 38 | 39.0 | 43 | YES | |
| Palagala | 38 | 38.21 | 28 | 38.0 | 39 | 40.0 | 42 | YES | |
| Palugaswewa | 40 | 40.42 | 29 | 40.0 | 41 | 42.0 | 47 | YES | |
| Galewela | 46 | 46.26 | 34 | 45.0 | 47 | 48.0 | 50 | | |
| Dambulla | 44 | 44.37 | 32 | 44.0 | 45 | 46.0 | 50 | YES | |
| Naula | 59 | 59.26 | 42 | 58.0 | 60 | 61.0 | 65 | | |
| Pallepola | 65 | 65.11 | 47 | 64.0 | 66 | 68.0 | 71 | | |
| Matale | 88 | 88.11 | 64 | 87.0 | 89 | 92.0 | 97 | | |
| Yatawatta | 82 | 82.00 | 60 | 81.0 | 83 | 86.0 | 90 | | |
| Ukuwela | 107 | 107.05 | 78 | 107.0 | 108 | 111.0 | 117 | YES | |
| Laggala-Pallegama | 86 | 86.32 | 61 | 85.0 | 88 | 90.0 | 95 | | |
| Ambanganga Korale | 91 | 90.79 | 65 | 90.0 | 92 | 95.0 | 100 | | |
| Rattota | 115 | 115.11 | 83 | 114.0 | 116 | 121.0 | 127 | | |

**Figure 2.8.** Projected changes in precipitation for August. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

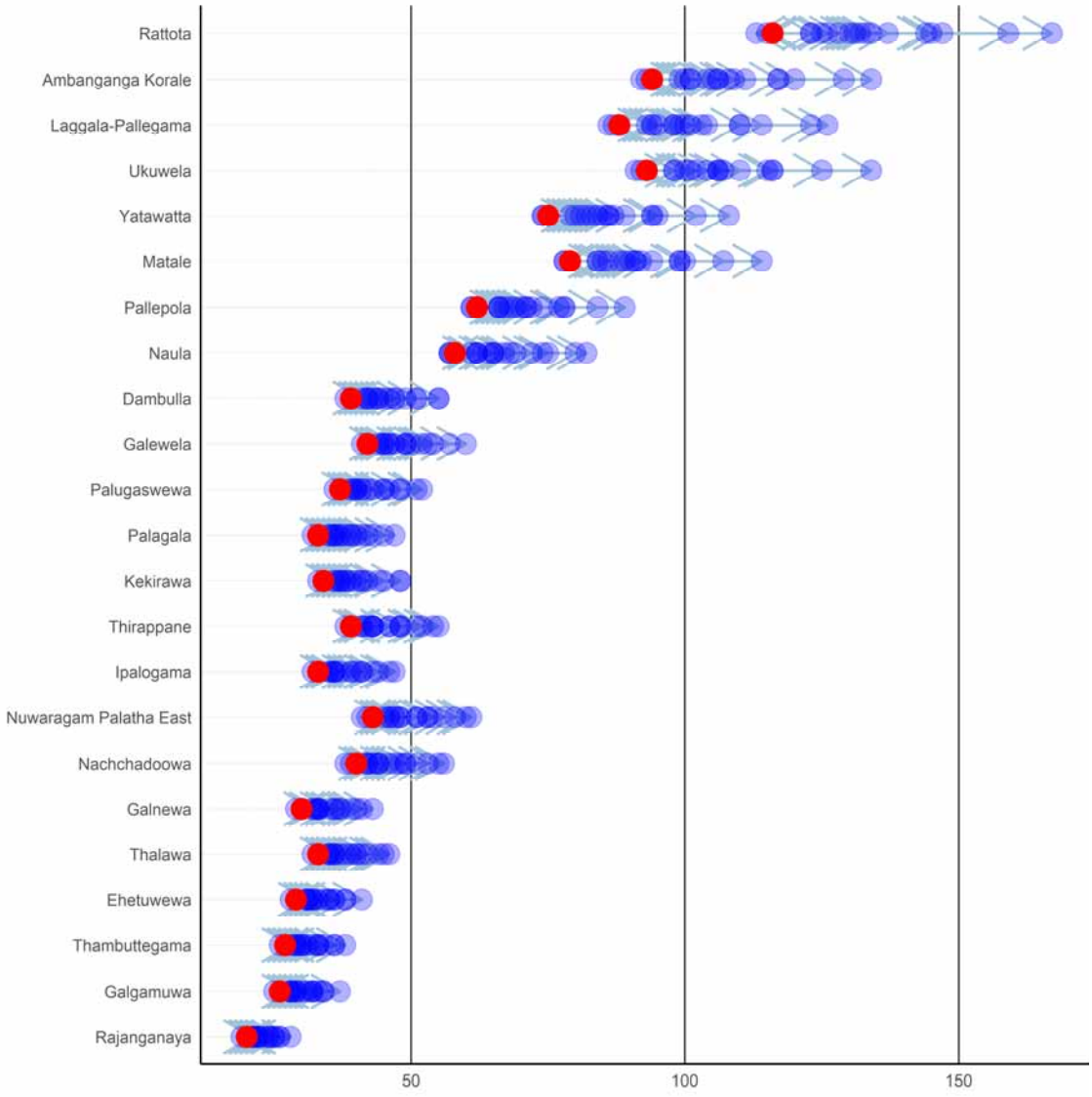


**Table 2.8.** Summary statistics of projected changes in August precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 20 | 22.89 | 19 | 22.0 | 22 | 24.0 | 28 | YES | |
| Galgamuwa | 26 | 30.05 | 25 | 28.0 | 29 | 32.0 | 37 | YES | |
| Thambuttegama | 27 | 31.11 | 26 | 29.0 | 30 | 33.0 | 38 | YES | |
| Ehetuwewa | 29 | 33.26 | 28 | 31.0 | 32 | 35.0 | 41 | YES | |
| Thalawa | 33 | 38.05 | 32 | 36.0 | 37 | 40.0 | 46 | YES | |
| Galnewa | 30 | 34.84 | 29 | 33.0 | 33 | 36.0 | 43 | YES | |
| Nachchadoowa | 40 | 45.89 | 38 | 43.0 | 44 | 48.0 | 56 | YES | |
| Nuwaragam Palatha East | 43 | 50.00 | 41 | 47.0 | 48 | 53.0 | 61 | YES | |
| Ipalogama | 33 | 38.37 | 32 | 36.0 | 37 | 40.0 | 47 | YES | |
| Thirappane | 39 | 45.26 | 38 | 43.0 | 43 | 48.0 | 55 | YES | |
| Kekirawa | 34 | 39.37 | 33 | 37.0 | 38 | 41.0 | 48 | YES | |
| Palagala | 33 | 38.11 | 32 | 36.0 | 37 | 39.0 | 47 | YES | |
| Palugaswewa | 37 | 42.63 | 36 | 40.0 | 41 | 45.0 | 52 | YES | |
| Galewela | 42 | 48.21 | 41 | 45.0 | 47 | 49.0 | 60 | YES | |
| Dambulla | 39 | 45.26 | 38 | 42.0 | 44 | 47.0 | 55 | YES | |
| Naula | 58 | 66.53 | 57 | 62.0 | 65 | 68.0 | 82 | YES | |
| Pallepola | 62 | 71.05 | 61 | 67.0 | 70 | 72.0 | 89 | YES | |
| Matale | 79 | 90.95 | 78 | 86.0 | 90 | 92.0 | 114 | YES | |
| Yatawatta | 75 | 86.21 | 74 | 82.0 | 85 | 87.0 | 108 | YES | |
| Ukuwela | 93 | 106.32 | 91 | 101.0 | 106 | 107.0 | 134 | YES | |
| Laggala-Pallegama | 88 | 101.21 | 86 | 95.0 | 99 | 103.0 | 126 | YES | |
| Ambanganga Korale | 94 | 107.68 | 92 | 101.0 | 106 | 109.0 | 134 | YES | |
| Rattota | 116 | 133.05 | 113 | 126.0 | 131 | 134.0 | 167 | YES | |

**Figure 2.9.** Projected changes in precipitation for September. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

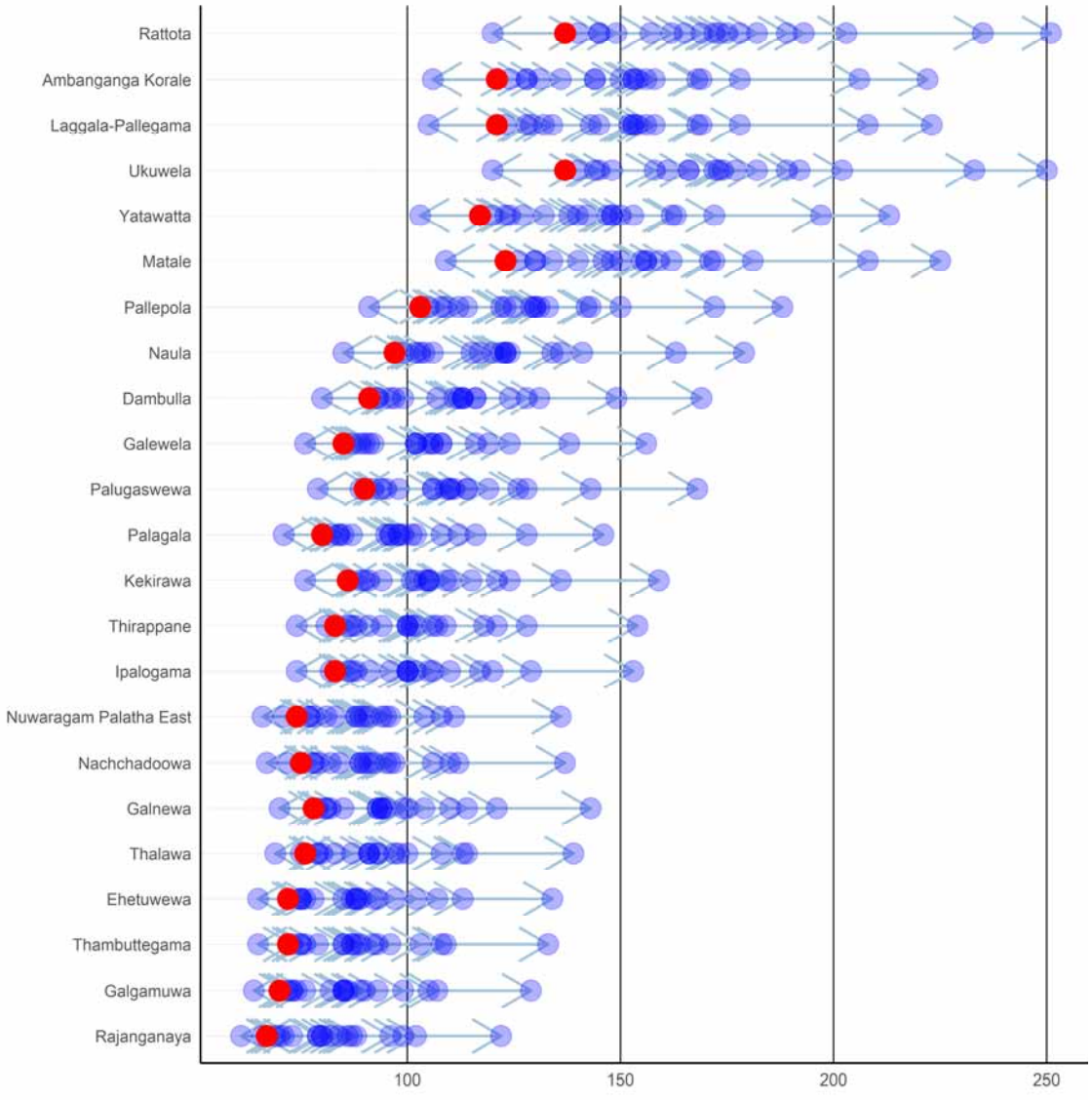


**Table 2.9.** Summary statistics of projected changes in September precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 67 | 82.84 | 61 | 79.0 | 80 | 86.0 | 122 | YES | |
| Galgamuwa | 70 | 86.95 | 64 | 82.0 | 85 | 89.0 | 129 | YES | |
| Thambuttegama | 72 | 89.37 | 65 | 85.0 | 87 | 92.0 | 133 | YES | |
| Ehetuwewa | 72 | 89.84 | 65 | 85.0 | 88 | 92.0 | 134 | YES | |
| Thalawa | 76 | 93.68 | 69 | 87.0 | 91 | 97.0 | 139 | YES | |
| Galnewa | 78 | 96.42 | 70 | 93.0 | 94 | 99.0 | 143 | YES | |
| Nachchadoowa | 75 | 91.79 | 67 | 84.0 | 90 | 95.0 | 137 | YES | |
| Nuwaragam Palatha East | 74 | 90.68 | 66 | 83.0 | 89 | 94.0 | 136 | YES | |
| Ipalogama | 83 | 102.42 | 74 | 96.0 | 100 | 105.0 | 153 | YES | |
| Thirappane | 83 | 102.47 | 74 | 94.0 | 100 | 106.0 | 154 | YES | |
| Kekirawa | 86 | 106.42 | 76 | 101.0 | 105 | 109.0 | 159 | YES | |
| Palagala | 80 | 99.37 | 71 | 95.0 | 98 | 101.0 | 146 | YES | |
| Palugaswewa | 90 | 111.11 | 79 | 106.0 | 110 | 114.0 | 168 | YES | |
| Galewela | 85 | 106.16 | 76 | 102.0 | 105 | 108.0 | 156 | YES | |
| Dambulla | 91 | 113.68 | 80 | 107.0 | 113 | 116.0 | 169 | YES | |
| Naula | 97 | 122.05 | 85 | 115.0 | 122 | 123.0 | 179 | YES | |
| Pallepola | 103 | 129.32 | 91 | 122.0 | 129 | 131.0 | 188 | YES | |
| Matale | 123 | 155.68 | 109 | 146.0 | 155 | 159.0 | 225 | YES | |
| Yatawatta | 117 | 147.47 | 103 | 138.0 | 147 | 150.0 | 213 | YES | |
| Ukuwela | 137 | 173.26 | 120 | 161.0 | 172 | 177.0 | 250 | YES | |
| Laggala-Pallegama | 121 | 153.21 | 105 | 143.0 | 153 | 156.0 | 223 | YES | |
| Ambanganga Korale | 121 | 153.05 | 106 | 144.0 | 153 | 156.0 | 222 | YES | |
| Rattota | 137 | 173.84 | 120 | 162.0 | 172 | 178.0 | 251 | YES | |

**Figure 2.10.** Projected changes in precipitation for October. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

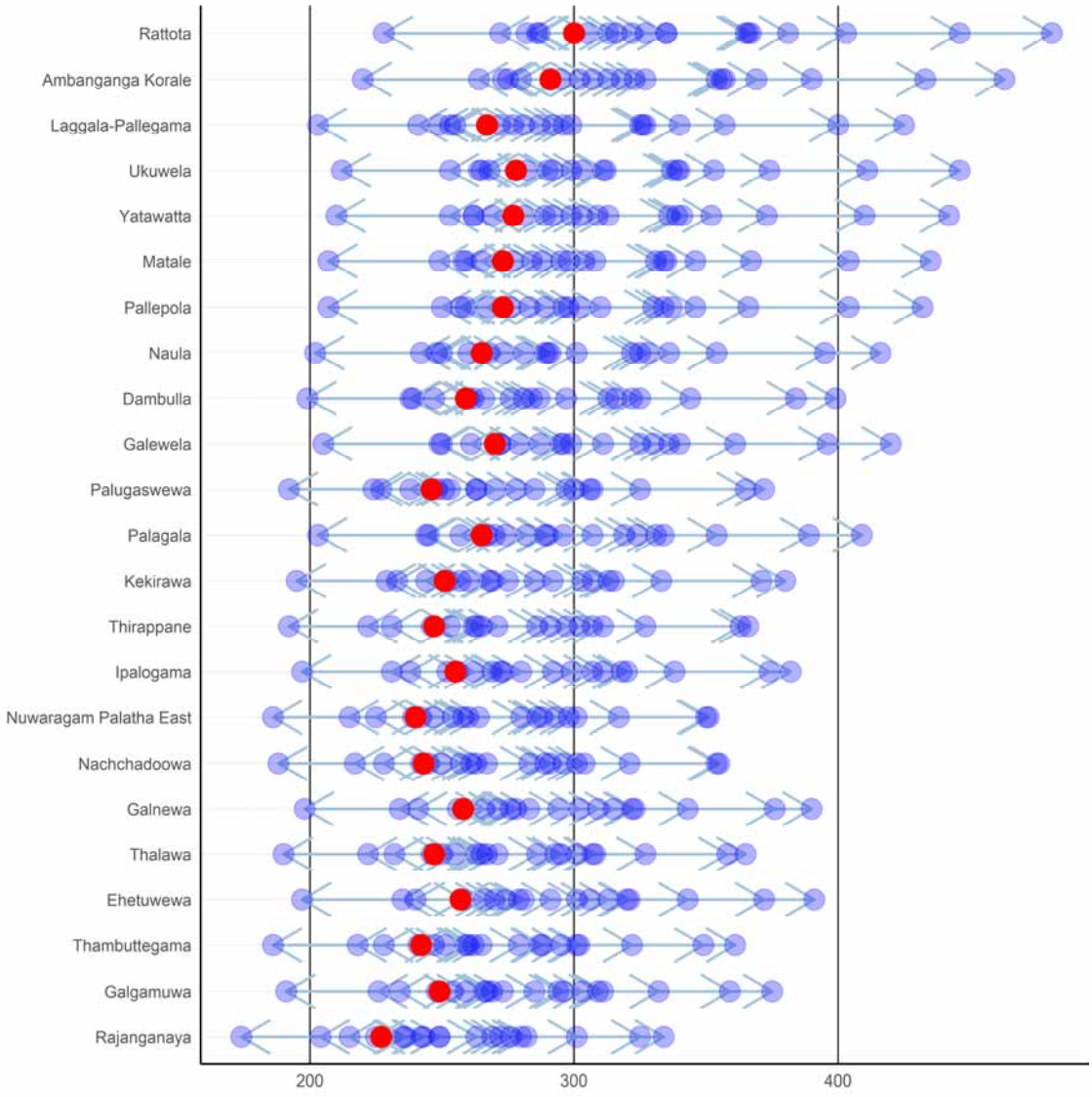


**Table 2.10.** Summary statistics of projected changes in October precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 227 | 256.53 | 174 | 242.0 | 249 | 272.0 | 334 | YES | |
| Galgamuwa | 249 | 281.63 | 191 | 266.0 | 273 | 296.0 | 375 | YES | |
| Thambuttegama | 242 | 273.74 | 186 | 259.0 | 265 | 288.0 | 361 | YES | |
| Ehetuwewa | 257 | 290.26 | 197 | 270.0 | 281 | 306.0 | 391 | YES | |
| Thalawa | 247 | 279.00 | 190 | 263.0 | 271 | 295.0 | 365 | YES | |
| Galnewa | 258 | 291.32 | 198 | 271.0 | 283 | 309.0 | 390 | YES | |
| Nachchadoowa | 243 | 274.32 | 188 | 257.0 | 267 | 291.0 | 355 | YES | |
| Nuwaragam Palatha East | 240 | 271.26 | 186 | 254.0 | 264 | 288.0 | 351 | YES | |
| Ipalogama | 255 | 287.95 | 197 | 269.0 | 280 | 307.0 | 382 | YES | |
| Thirappane | 247 | 279.05 | 192 | 262.0 | 271 | 297.0 | 366 | YES | |
| Kekirawa | 251 | 283.21 | 195 | 260.0 | 275 | 303.0 | 380 | YES | |
| Palagala | 265 | 299.16 | 203 | 274.0 | 290 | 319.0 | 409 | YES | |
| Palugaswewa | 246 | 277.05 | 192 | 253.0 | 270 | 297.0 | 372 | YES | |
| Galewela | 270 | 304.42 | 205 | 279.0 | 296 | 325.0 | 420 | YES | |
| Dambulla | 259 | 291.53 | 199 | 266.0 | 284 | 313.0 | 399 | YES | |
| Naula | 265 | 298.47 | 202 | 273.0 | 290 | 322.0 | 416 | YES | |
| Pallepola | 273 | 307.53 | 207 | 283.0 | 298 | 330.0 | 432 | YES | |
| Matale | 273 | 307.58 | 207 | 284.0 | 298 | 331.0 | 435 | YES | |
| Yatawatta | 277 | 312.37 | 210 | 289.0 | 303 | 336.0 | 442 | YES | |
| Ukuwela | 278 | 313.21 | 212 | 290.0 | 303 | 337.0 | 446 | YES | |
| Laggala-Pallegama | 267 | 300.26 | 203 | 277.0 | 292 | 325.0 | 425 | YES | |
| Ambanganga Korale | 291 | 327.32 | 220 | 302.0 | 318 | 354.0 | 463 | YES | |
| Rattota | 300 | 337.74 | 228 | 313.0 | 327 | 365.0 | 481 | YES | |

**Figure 2.11.** Projected changes in precipitation for November. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

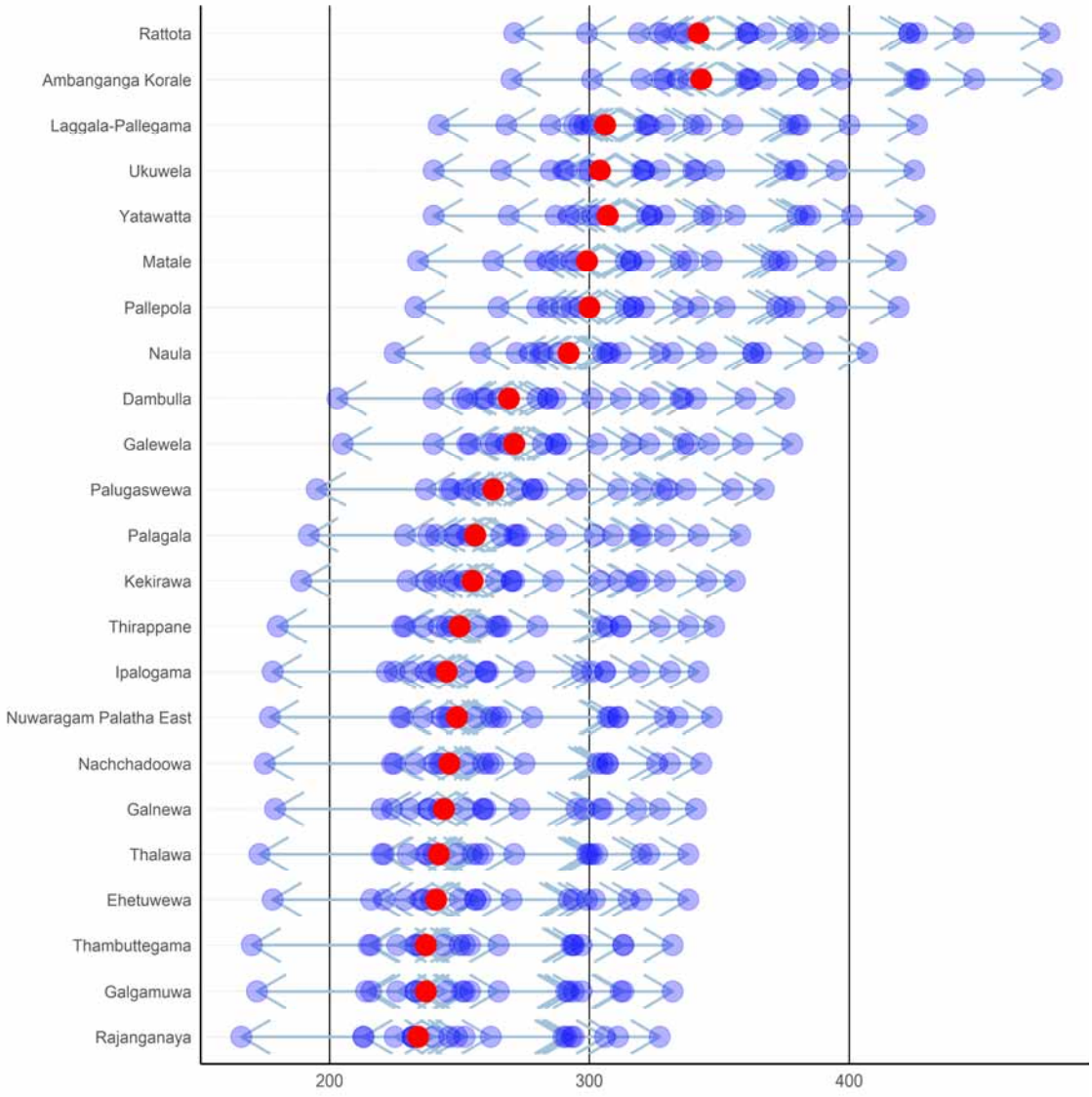


**Table 2.11.** Summary statistics of projected changes in November precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 234 | 256.53 | 166 | 232.0 | 249 | 290.0 | 327 | | |
| Galgamuwa | 237 | 259.32 | 172 | 235.0 | 252 | 291.0 | 332 | | |
| Thambuttegama | 237 | 259.47 | 170 | 235.0 | 252 | 293.0 | 332 | | |
| Ehetuwewa | 241 | 263.37 | 178 | 239.0 | 256 | 292.0 | 338 | | |
| Thalawa | 242 | 264.95 | 173 | 240.0 | 257 | 299.0 | 338 | | |
| Galnewa | 244 | 266.47 | 179 | 242.0 | 259 | 295.0 | 341 | | |
| Nachchadoowa | 246 | 269.21 | 175 | 243.0 | 261 | 303.0 | 343 | | |
| Nuwaragam Palatha East | 249 | 272.37 | 177 | 246.0 | 264 | 307.0 | 347 | | |
| Ipalogama | 245 | 267.63 | 178 | 242.0 | 260 | 297.0 | 342 | | |
| Thirappane | 250 | 273.05 | 180 | 247.0 | 265 | 305.0 | 348 | | |
| Kekirawa | 255 | 278.16 | 189 | 252.0 | 270 | 304.0 | 356 | | |
| Palagala | 256 | 278.84 | 192 | 253.0 | 272 | 302.0 | 358 | | |
| Palugaswewa | 263 | 286.42 | 195 | 259.0 | 278 | 311.0 | 367 | | |
| Galewela | 271 | 294.21 | 205 | 268.0 | 287 | 316.0 | 378 | | |
| Dambulla | 269 | 292.05 | 203 | 265.0 | 284 | 312.0 | 375 | | |
| Naula | 292 | 316.00 | 225 | 288.0 | 308 | 332.0 | 407 | | |
| Pallepola | 300 | 325.21 | 233 | 296.0 | 317 | 342.0 | 419 | | |
| Matale | 299 | 323.68 | 234 | 295.0 | 316 | 338.0 | 418 | | |
| Yatawatta | 307 | 332.16 | 240 | 303.0 | 324 | 347.0 | 429 | | |
| Ukuwela | 304 | 328.58 | 240 | 300.0 | 321 | 341.0 | 425 | | |
| Laggala-Pallegama | 306 | 330.58 | 242 | 301.0 | 323 | 343.0 | 426 | | |
| Ambanganga Korale | 343 | 370.53 | 270 | 338.0 | 362 | 384.0 | 478 | | |
| Rattota | 342 | 369.21 | 271 | 337.0 | 361 | 383.0 | 477 | | |

**Figure 2.12.** Projected changes in precipitation for December. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

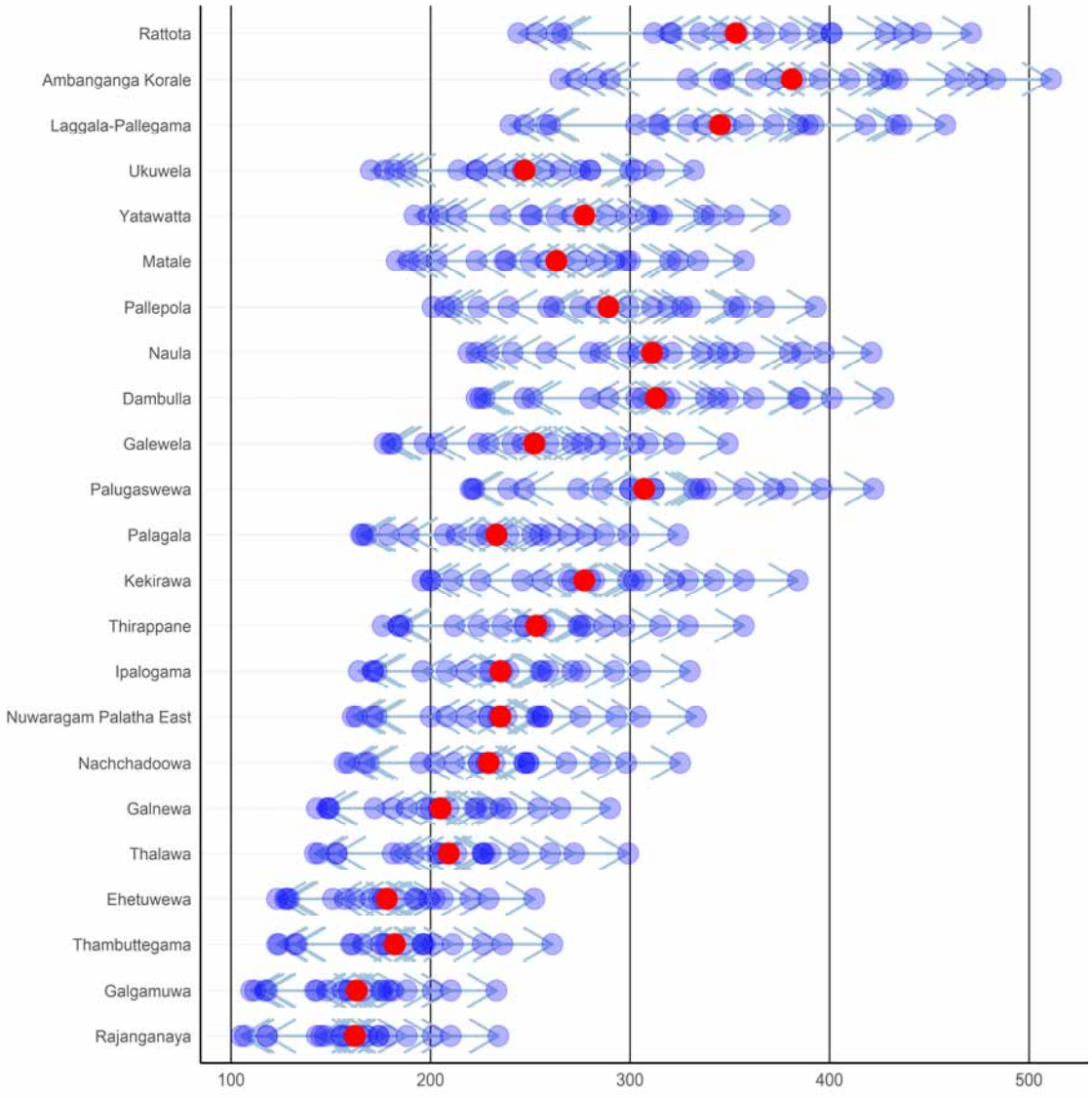


**Table 2.12.** Summary statistics of projected changes in December precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 162 | 160.21 | 105 | 147.0 | 158 | 174.0 | 234 | | |
| Galgamuwa | 163 | 161.74 | 110 | 148.0 | 159 | 176.0 | 233 | | |
| Thambuttegama | 182 | 181.00 | 123 | 166.0 | 178 | 196.0 | 261 | | |
| Ehetuwewa | 178 | 177.47 | 123 | 162.0 | 176 | 193.0 | 252 | | |
| Thalawa | 209 | 208.42 | 142 | 192.0 | 206 | 226.0 | 299 | | |
| Galnewa | 205 | 205.05 | 143 | 188.0 | 204 | 223.0 | 290 | | |
| Nachchadoowa | 229 | 228.26 | 157 | 212.0 | 228 | 247.0 | 325 | | |
| Nuwaragam Palatha East | 235 | 234.16 | 161 | 218.0 | 234 | 254.0 | 333 | | |
| Ipalogama | 235 | 235.68 | 164 | 218.0 | 236 | 256.0 | 330 | | |
| Thirappane | 253 | 253.63 | 176 | 236.0 | 255 | 275.0 | 357 | | |
| Kekirawa | 277 | 277.74 | 196 | 256.0 | 280 | 302.0 | 384 | | |
| Palagala | 233 | 233.37 | 165 | 213.0 | 233 | 255.0 | 324 | | |
| Palugaswewa | 307 | 308.63 | 220 | 286.0 | 312 | 335.0 | 422 | | |
| Galewela | 252 | 252.11 | 177 | 229.0 | 252 | 276.0 | 349 | | |
| Dambulla | 313 | 314.63 | 223 | 289.0 | 317 | 344.0 | 427 | | |
| Naula | 311 | 312.79 | 219 | 285.0 | 314 | 344.0 | 421 | | |
| Pallepola | 289 | 289.58 | 201 | 262.0 | 289 | 319.0 | 393 | | |
| Matale | 263 | 264.16 | 183 | 238.0 | 263 | 292.0 | 357 | | |
| Yatawatta | 277 | 278.11 | 192 | 251.0 | 277 | 308.0 | 375 | | |
| Ukuwela | 247 | 247.47 | 170 | 223.0 | 246 | 275.0 | 332 | | |
| Laggala-Pallegama | 345 | 346.84 | 240 | 315.0 | 348 | 384.0 | 458 | | |
| Ambanganga Korale | 381 | 382.95 | 265 | 347.0 | 383 | 424.0 | 511 | | |
| Rattota | 353 | 354.68 | 244 | 321.0 | 354 | 394.0 | 471 | | |

## 3. Projected changes in monthly precipitation for the project sites for a high emissions scenario (RCP 8.5)

Using similar criteria to identify consensus among GCMs and **likely** climatic changes as in the previous section, showed that there was no evidence for precipation decreases in January during the *Maha* season. However, approximitly the same number of GCMs did predict a decrease in precipation. Where rainfall was projected to increase in the lowlands, it remained relatively low as compared to upland locations.

In April and May, precipitation is projected to decrease in lowland areas (Figures and Tables 3.4 and 3.5).

In the month of June (Figure and Table 3.6), precipitation is projected to decrease but in July (Figure and Table 3.7) it is likely to increase.

October to December precipitation (Tables and Figures 3.10 – 3.12) are likely to increase, including sowing and growing periods for the *Maha* season. The likely increases in precipitation also justify investments in infrastructure to control flooding and erosion events.

**Figure 3.1.** Projected changes in precipitation for January. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

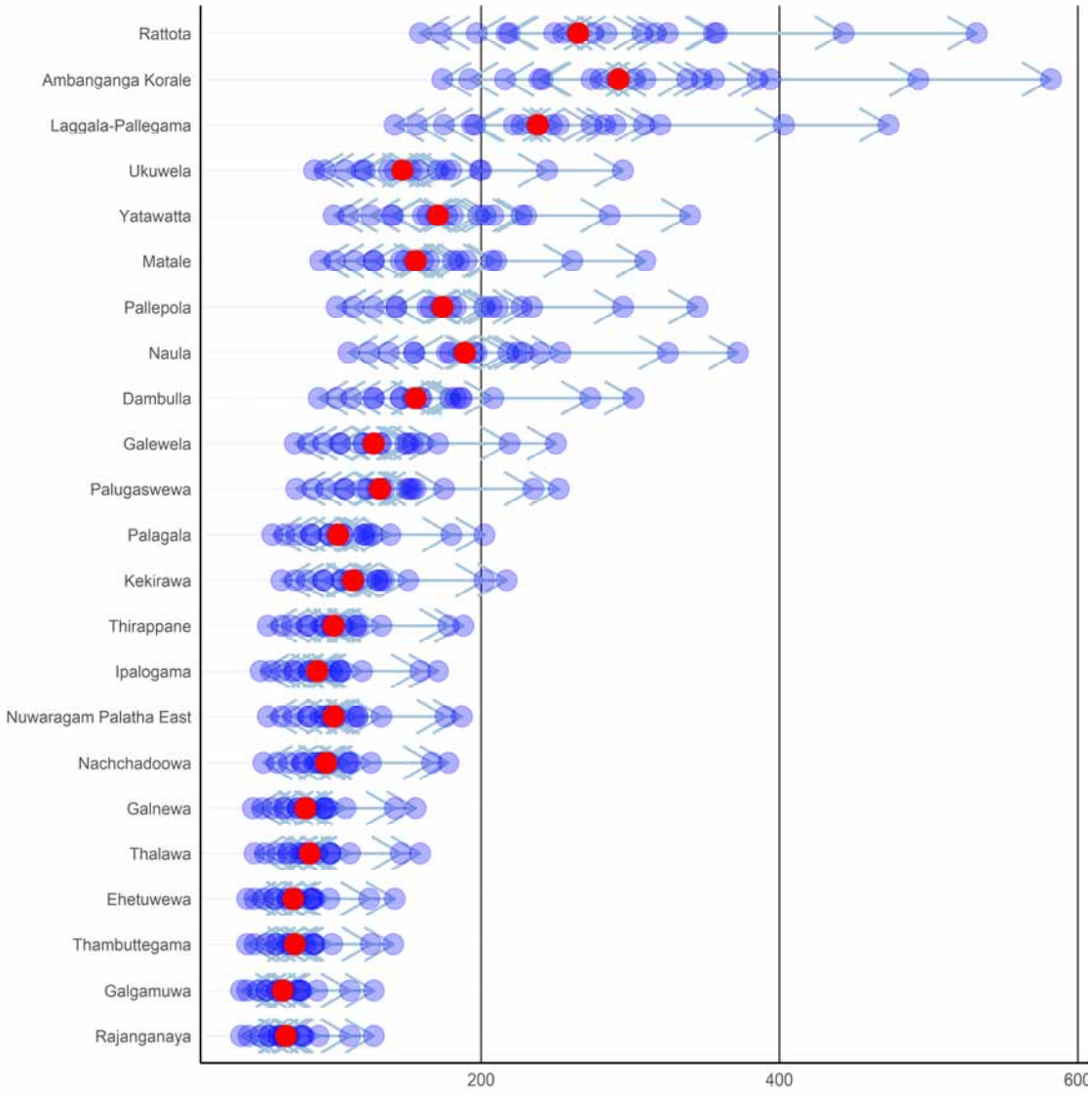


**Table 3.1.** Summary statistics of projected changes in January precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 69 | 72.18 | 39 | 64.3 | 68 | 76.3 | 128 | | |
| Galgamuwa | 67 | 71.47 | 39 | 63.3 | 68 | 77.3 | 128 | | |
| Thambuttegama | 75 | 79.35 | 43 | 70.3 | 75 | 85.3 | 141 | | |
| Ehetuwewa | 74 | 79.06 | 43 | 70.0 | 75 | 86.0 | 142 | | |
| Thalawa | 85 | 89.47 | 48 | 78.7 | 84 | 95.3 | 159 | | |
| Galnewa | 82 | 87.41 | 47 | 77.0 | 83 | 94.7 | 156 | | |
| Nachchadoowa | 96 | 100.71 | 54 | 88.7 | 94 | 106.0 | 178 | | |
| Nuwaragam Palatha East | 101 | 105.82 | 57 | 93.0 | 99 | 111.0 | 187 | | |
| Ipalogama | 90 | 95.94 | 52 | 84.3 | 90 | 103.3 | 171 | | |
| Thirappane | 101 | 106.35 | 57 | 93.7 | 100 | 113.0 | 188 | | |
| Kekirawa | 114 | 121.65 | 66 | 106.3 | 115 | 130.7 | 217 | | |
| Palagala | 104 | 112.00 | 60 | 98.0 | 107 | 121.7 | 202 | | |
| Palugaswewa | 132 | 140.88 | 76 | 123.3 | 133 | 151.3 | 252 | | |
| Galewela | 128 | 138.35 | 75 | 121.0 | 132 | 150.3 | 250 | | |
| Dambulla | 156 | 167.41 | 91 | 146.0 | 159 | 181.7 | 302 | | |
| Naula | 189 | 204.65 | 111 | 177.7 | 195 | 222.0 | 372 | | |
| Pallepola | 174 | 189.29 | 103 | 164.7 | 180 | 205.3 | 345 | | |
| Matale | 156 | 169.71 | 92 | 147.0 | 161 | 183.7 | 310 | | |
| Yatawatta | 171 | 186.12 | 101 | 162.0 | 177 | 201.3 | 340 | | |
| Ukuwela | 147 | 161.00 | 88 | 139.3 | 153 | 174.3 | 295 | | |
| Laggala-Pallegama | 238 | 258.88 | 142 | 223.7 | 247 | 280.0 | 473 | | |
| Ambanganga Korale | 292 | 318.59 | 174 | 276.0 | 303 | 344.7 | 582 | | |
| Rattota | 265 | 290.06 | 159 | 251.0 | 275 | 314.0 | 532 | | |

**Figure 3.2.** Projected changes in precipitation for February. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

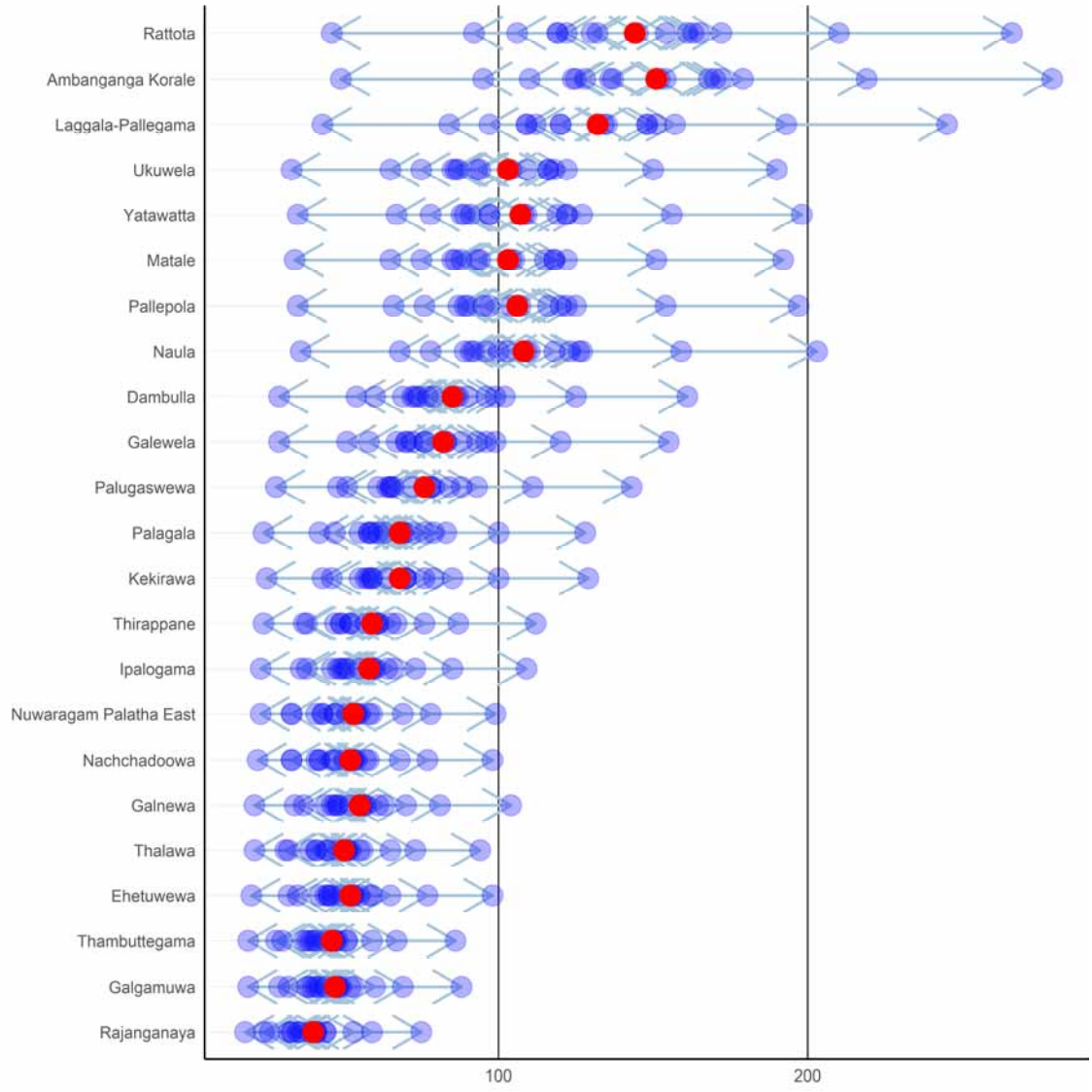


**Table 3.2.** Summary statistics of projected changes in February precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 40 | 39.65 | 18 | 33.7 | 39 | 41.0 | 75 | | |
| Galgamuwa | 47 | 46.53 | 19 | 40.3 | 44 | 48.7 | 88 | | |
| Thambuttegama | 46 | 45.41 | 19 | 39.3 | 44 | 47.7 | 86 | | |
| Ehetuwewa | 52 | 51.53 | 20 | 45.0 | 49 | 54.3 | 98 | | |
| Thalawa | 50 | 49.35 | 21 | 42.0 | 48 | 51.7 | 94 | | |
| Galnewa | 55 | 54.41 | 21 | 47.3 | 52 | 56.7 | 104 | | |
| Nachchadoowa | 52 | 51.41 | 22 | 43.3 | 50 | 53.7 | 98 | | |
| Nuwaragam Palatha East | 53 | 52.18 | 23 | 44.3 | 51 | 54.7 | 99 | | |
| Ipalogama | 58 | 57.12 | 23 | 49.3 | 55 | 59.7 | 109 | | |
| Thirappane | 59 | 58.47 | 24 | 50.0 | 57 | 61.0 | 112 | | |
| Kekirawa | 68 | 67.35 | 25 | 58.3 | 64 | 70.0 | 129 | | |
| Palagala | 68 | 67.24 | 24 | 58.3 | 63 | 71.0 | 128 | | |
| Palugaswewa | 76 | 74.94 | 28 | 65.0 | 72 | 78.7 | 143 | | |
| Galewela | 82 | 81.53 | 29 | 70.7 | 76 | 86.3 | 155 | | |
| Dambulla | 85 | 84.29 | 29 | 73.3 | 79 | 89.0 | 161 | | |
| Naula | 108 | 107.53 | 36 | 93.3 | 103 | 115.3 | 203 | | |
| Pallepola | 106 | 105.06 | 35 | 91.7 | 104 | 113.0 | 197 | | |
| Matale | 103 | 102.82 | 34 | 89.7 | 103 | 111.7 | 192 | | |
| Yatawatta | 107 | 106.47 | 35 | 93.0 | 107 | 115.7 | 198 | | |
| Ukuwela | 103 | 102.71 | 33 | 89.0 | 103 | 113.7 | 190 | | |
| Laggala-Pallegama | 132 | 131.59 | 43 | 114.7 | 132 | 143.7 | 245 | | |
| Ambanganga Korale | 151 | 149.88 | 49 | 130.7 | 151 | 163.3 | 279 | | |
| Rattota | 144 | 143.88 | 46 | 124.7 | 144 | 158.7 | 266 | | |

**Figure 3.3.** Projected changes in precipitation for March. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

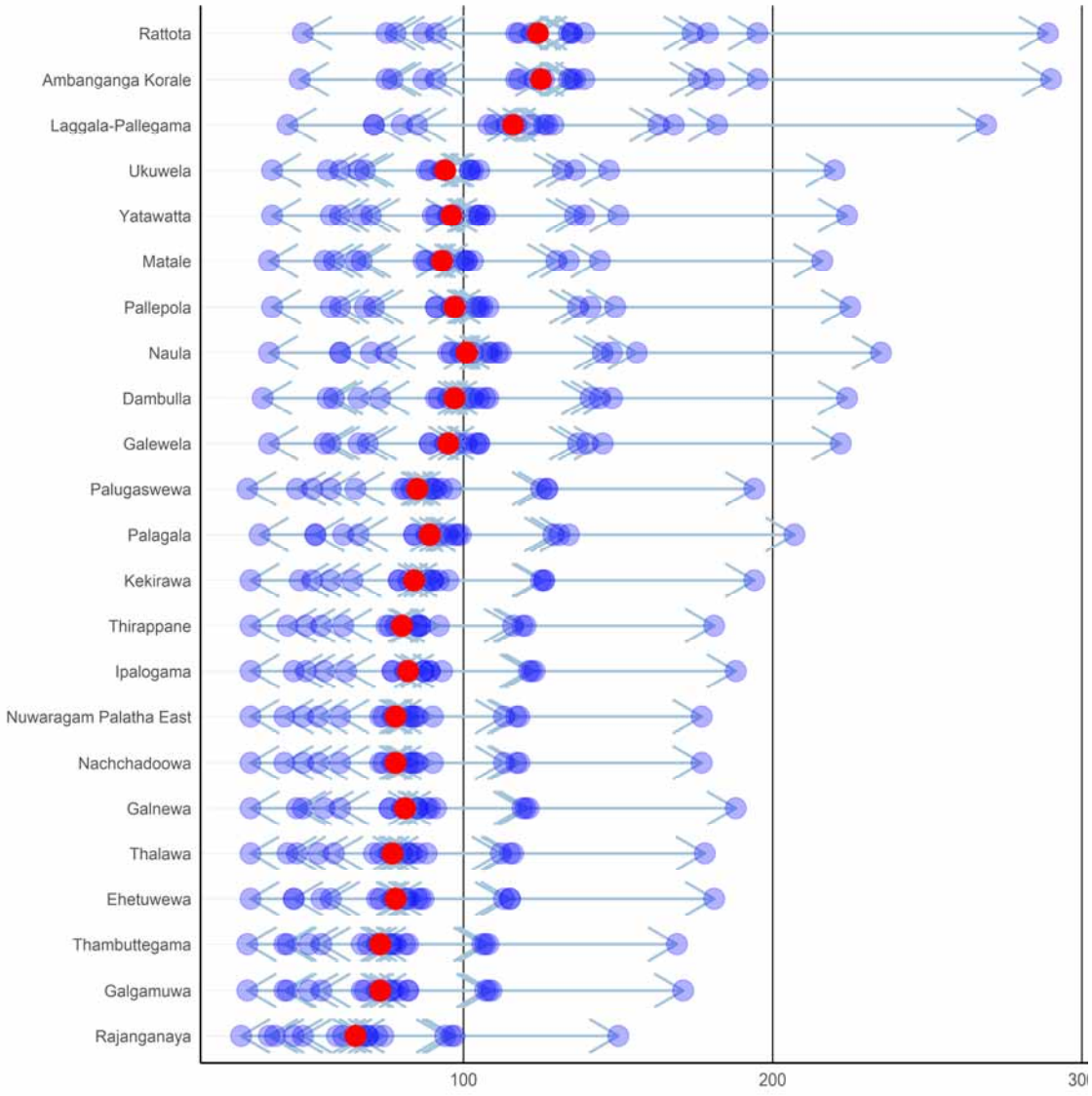


**Table 3.3.** Summary statistics of projected changes in March precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 65 | 68.82 | 28 | 59.7 | 67 | 71.0 | 150 | | |
| Galgamuwa | 73 | 77.47 | 30 | 67.3 | 76 | 81.0 | 171 | | |
| Thambuttegama | 73 | 77.12 | 30 | 67.7 | 76 | 80.0 | 169 | | |
| Ehetuwewa | 78 | 82.29 | 31 | 72.3 | 81 | 85.7 | 181 | | |
| Thalawa | 77 | 81.76 | 31 | 71.7 | 80 | 84.3 | 178 | | |
| Galnewa | 81 | 85.76 | 31 | 76.0 | 85 | 88.7 | 188 | | |
| Nachchadoowa | 78 | 82.76 | 31 | 73.3 | 82 | 84.7 | 177 | | |
| Nuwaragam Palatha East | 78 | 82.76 | 31 | 73.3 | 82 | 84.7 | 177 | | |
| Ipalogama | 82 | 86.82 | 31 | 77.0 | 87 | 89.0 | 188 | | |
| Thirappane | 80 | 84.53 | 31 | 75.3 | 85 | 86.0 | 181 | | |
| Kekirawa | 84 | 89.18 | 31 | 79.0 | 88 | 91.3 | 194 | | |
| Palagala | 89 | 94.29 | 34 | 84.0 | 92 | 97.7 | 207 | | |
| Palugaswewa | 85 | 89.71 | 30 | 80.3 | 89 | 92.3 | 194 | | |
| Galewela | 95 | 100.76 | 37 | 89.0 | 98 | 104.7 | 222 | | |
| Dambulla | 97 | 102.76 | 35 | 91.3 | 101 | 106.3 | 224 | | |
| Naula | 101 | 107.00 | 37 | 95.3 | 103 | 110.3 | 235 | | |
| Pallepola | 97 | 102.65 | 38 | 91.0 | 98 | 105.7 | 225 | | |
| Matale | 93 | 98.35 | 37 | 87.3 | 94 | 101.0 | 216 | | |
| Yatawatta | 96 | 102.06 | 38 | 90.3 | 97 | 105.0 | 224 | | |
| Ukuwela | 94 | 99.94 | 38 | 88.3 | 94 | 102.7 | 220 | | |
| Laggala-Pallegama | 116 | 122.65 | 43 | 108.7 | 117 | 126.7 | 269 | | |
| Ambanganga Korale | 125 | 132.18 | 47 | 117.3 | 126 | 135.7 | 290 | | |
| Rattota | 124 | 131.76 | 48 | 117.3 | 124 | 135.0 | 289 | | |

**Figure 3.4.** Projected changes in precipitation for April. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

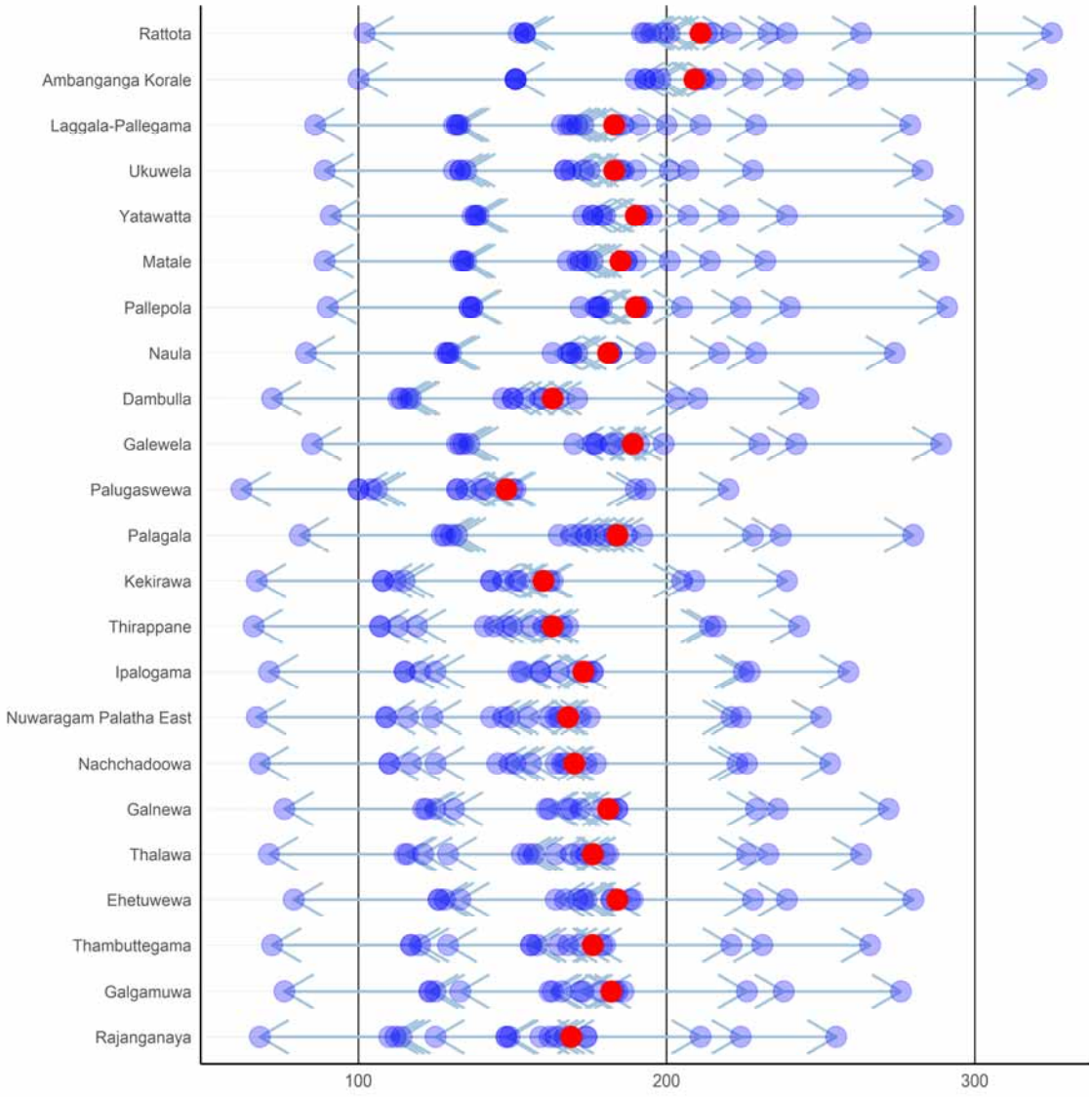


**Table 3.4.** Summary statistics of projected changes in April precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 169 | 156.71 | 68 | 148.0 | 159 | 166.0 | 255 | | YES |
| Galgamuwa | 182 | 169.88 | 76 | 162.3 | 172 | 181.7 | 276 | | YES |
| Thambuttegama | 176 | 163.71 | 72 | 156.0 | 165 | 174.7 | 266 | | YES |
| Ehetuwewa | 184 | 172.29 | 79 | 165.0 | 173 | 182.0 | 280 | | YES |
| Thalawa | 176 | 163.47 | 71 | 153.7 | 164 | 173.3 | 263 | | YES |
| Galnewa | 181 | 169.00 | 76 | 161.3 | 169 | 181.0 | 272 | | YES |
| Nachchadoowa | 170 | 157.71 | 68 | 146.3 | 156 | 166.7 | 253 | | YES |
| Nuwaragam Palatha East | 168 | 156.00 | 67 | 144.3 | 155 | 164.7 | 250 | | YES |
| Ipalogama | 173 | 161.29 | 71 | 152.3 | 159 | 173.0 | 259 | | YES |
| Thirappane | 163 | 151.76 | 66 | 142.0 | 150 | 161.3 | 243 | | YES |
| Kekirawa | 160 | 149.59 | 67 | 143.0 | 151 | 159.7 | 239 | | YES |
| Palagala | 184 | 173.06 | 81 | 166.3 | 174 | 182.0 | 280 | | YES |
| Palugaswewa | 148 | 138.29 | 62 | 132.0 | 140 | 147.7 | 220 | | YES |
| Galewela | 189 | 178.00 | 85 | 172.0 | 177 | 187.3 | 289 | | YES |
| Dambulla | 163 | 153.53 | 72 | 148.0 | 154 | 162.0 | 246 | | YES |
| Naula | 181 | 170.47 | 83 | 164.7 | 169 | 182.0 | 274 | | |
| Pallepola | 190 | 179.71 | 90 | 173.7 | 178 | 191.7 | 291 | | |
| Matale | 185 | 175.41 | 89 | 169.0 | 174 | 187.0 | 285 | | |
| Yatawatta | 190 | 180.29 | 91 | 174.0 | 179 | 192.0 | 293 | | |
| Ukuwela | 183 | 173.65 | 89 | 167.0 | 173 | 185.7 | 283 | | |
| Laggala-Pallegama | 183 | 173.00 | 86 | 166.7 | 171 | 185.3 | 279 | | |
| Ambanganga Korale | 209 | 197.88 | 100 | 191.0 | 196 | 211.7 | 320 | | |
| Rattota | 211 | 200.29 | 102 | 192.3 | 199 | 214.3 | 325 | | |

**Figure 3.5.** Projected changes in precipitation for May. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

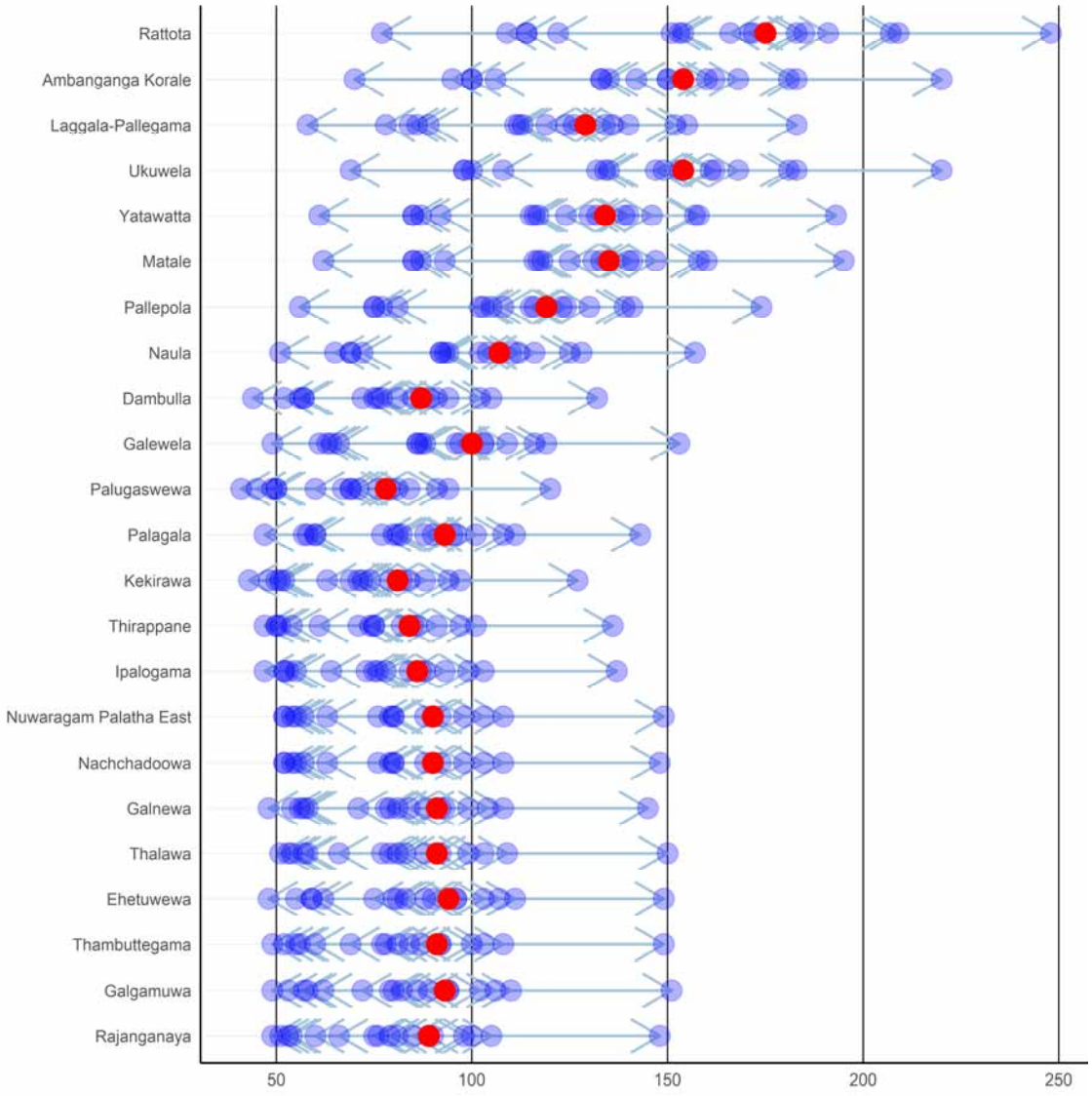


**Table 3.5.** Summary statistics of projected changes in May precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 89 | 79.94 | 49 | 69.0 | 79 | 87.7 | 148 | | YES |
| Galgamuwa | 93 | 83.76 | 49 | 74.3 | 82 | 92.3 | 151 | | YES |
| Thambuttegama | 91 | 81.88 | 49 | 71.7 | 81 | 90.3 | 149 | | YES |
| Ehetuwewa | 94 | 84.82 | 48 | 76.7 | 83 | 94.0 | 149 | | YES |
| Thalawa | 91 | 81.82 | 51 | 69.7 | 81 | 90.0 | 150 | | YES |
| Galnewa | 91 | 82.06 | 48 | 73.3 | 81 | 90.7 | 145 | | YES |
| Nachchadoowa | 90 | 80.88 | 52 | 67.3 | 80 | 89.3 | 148 | | YES |
| Nuwaragam Palatha East | 90 | 80.94 | 52 | 67.3 | 80 | 89.3 | 149 | | YES |
| Ipalogama | 86 | 77.41 | 47 | 67.0 | 76 | 86.0 | 137 | | YES |
| Thirappane | 84 | 75.65 | 47 | 64.3 | 75 | 84.0 | 136 | | YES |
| Kekirawa | 81 | 73.18 | 43 | 65.0 | 72 | 81.0 | 127 | | YES |
| Palagala | 93 | 84.35 | 47 | 78.0 | 82 | 93.3 | 143 | | |
| Palugaswewa | 78 | 70.35 | 41 | 62.3 | 69 | 78.0 | 120 | | YES |
| Galewela | 100 | 90.94 | 49 | 86.0 | 88 | 101.0 | 153 | | |
| Dambulla | 87 | 79.12 | 44 | 73.0 | 77 | 87.7 | 132 | | |
| Naula | 107 | 97.12 | 51 | 92.0 | 94 | 108.0 | 157 | | |
| Pallepola | 119 | 108.47 | 56 | 102.3 | 108 | 120.7 | 174 | | |
| Matale | 135 | 123.12 | 62 | 116.3 | 125 | 137.7 | 195 | | |
| Yatawatta | 134 | 122.18 | 61 | 115.3 | 124 | 136.7 | 193 | | |
| Ukuwela | 154 | 141.06 | 69 | 132.7 | 147 | 158.3 | 220 | | |
| Laggala-Pallegama | 129 | 117.65 | 58 | 111.3 | 119 | 131.3 | 183 | | |
| Ambanganga Korale | 154 | 140.47 | 70 | 133.0 | 142 | 156.7 | 220 | | |
| Rattota | 175 | 160.35 | 77 | 151.7 | 166 | 179.3 | 248 | | |

**Figure 3.6.** Projected changes in precipitation for June. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

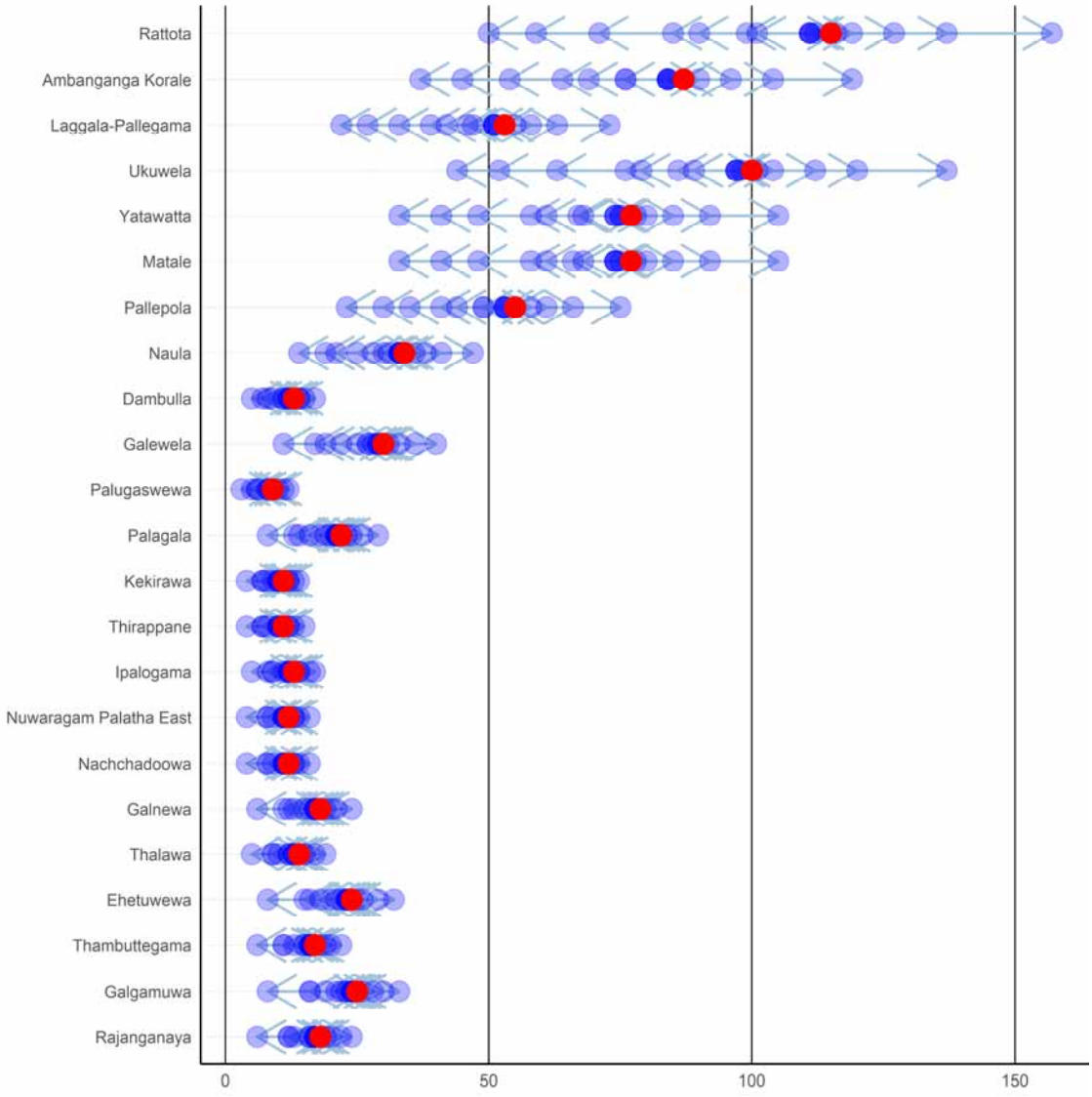


**Table 3.6.** Summary statistics of projected changes in June precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 18 | 16.47 | 6 | 16.3 | 17 | 17.0 | 24 | | YES |
| Galgamuwa | 25 | 22.71 | 8 | 22.3 | 24 | 24.0 | 33 | | YES |
| Thambuttegama | 17 | 15.47 | 6 | 15.3 | 16 | 16.0 | 22 | | YES |
| Ehetuwewa | 24 | 21.82 | 8 | 21.3 | 23 | 23.0 | 32 | | YES |
| Thalawa | 14 | 12.76 | 5 | 12.3 | 13 | 14.0 | 19 | | YES |
| Galnewa | 18 | 16.29 | 6 | 16.3 | 17 | 17.0 | 24 | | YES |
| Nachchadoowa | 12 | 11.06 | 4 | 11.0 | 11 | 12.0 | 16 | | YES |
| Nuwaragam Palatha East | 12 | 11.06 | 4 | 11.0 | 11 | 12.0 | 16 | | YES |
| Ipalogama | 13 | 11.88 | 5 | 12.0 | 12 | 13.0 | 17 | | YES |
| Thirappane | 11 | 10.18 | 4 | 10.0 | 11 | 11.0 | 15 | | YES |
| Kekirawa | 11 | 10.00 | 4 | 10.0 | 10 | 11.0 | 14 | | YES |
| Palagala | 22 | 19.82 | 8 | 19.3 | 21 | 21.0 | 29 | | YES |
| Palugaswewa | 9 | 8.24 | 3 | 8.0 | 9 | 9.0 | 12 | | YES |
| Galewela | 30 | 27.18 | 11 | 27.0 | 29 | 29.0 | 40 | | YES |
| Dambulla | 13 | 11.65 | 5 | 11.3 | 12 | 13.0 | 17 | | YES |
| Naula | 34 | 31.12 | 14 | 30.3 | 33 | 33.0 | 47 | | YES |
| Pallepola | 55 | 50.06 | 23 | 49.0 | 53 | 53.0 | 75 | | YES |
| Matale | 77 | 69.76 | 33 | 66.7 | 74 | 74.7 | 105 | | YES |
| Yatawatta | 77 | 69.88 | 33 | 67.3 | 74 | 75.0 | 105 | | YES |
| Ukuwela | 100 | 91.12 | 44 | 87.0 | 97 | 97.7 | 137 | | YES |
| Laggala-Pallegama | 53 | 47.82 | 22 | 46.3 | 51 | 51.0 | 73 | | YES |
| Ambanganga Korale | 87 | 78.65 | 37 | 76.0 | 84 | 84.0 | 119 | | YES |
| Rattota | 115 | 103.94 | 50 | 99.7 | 111 | 111.7 | 157 | | YES |

**Figure 3.7.** Projected changes in precipitation for July. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

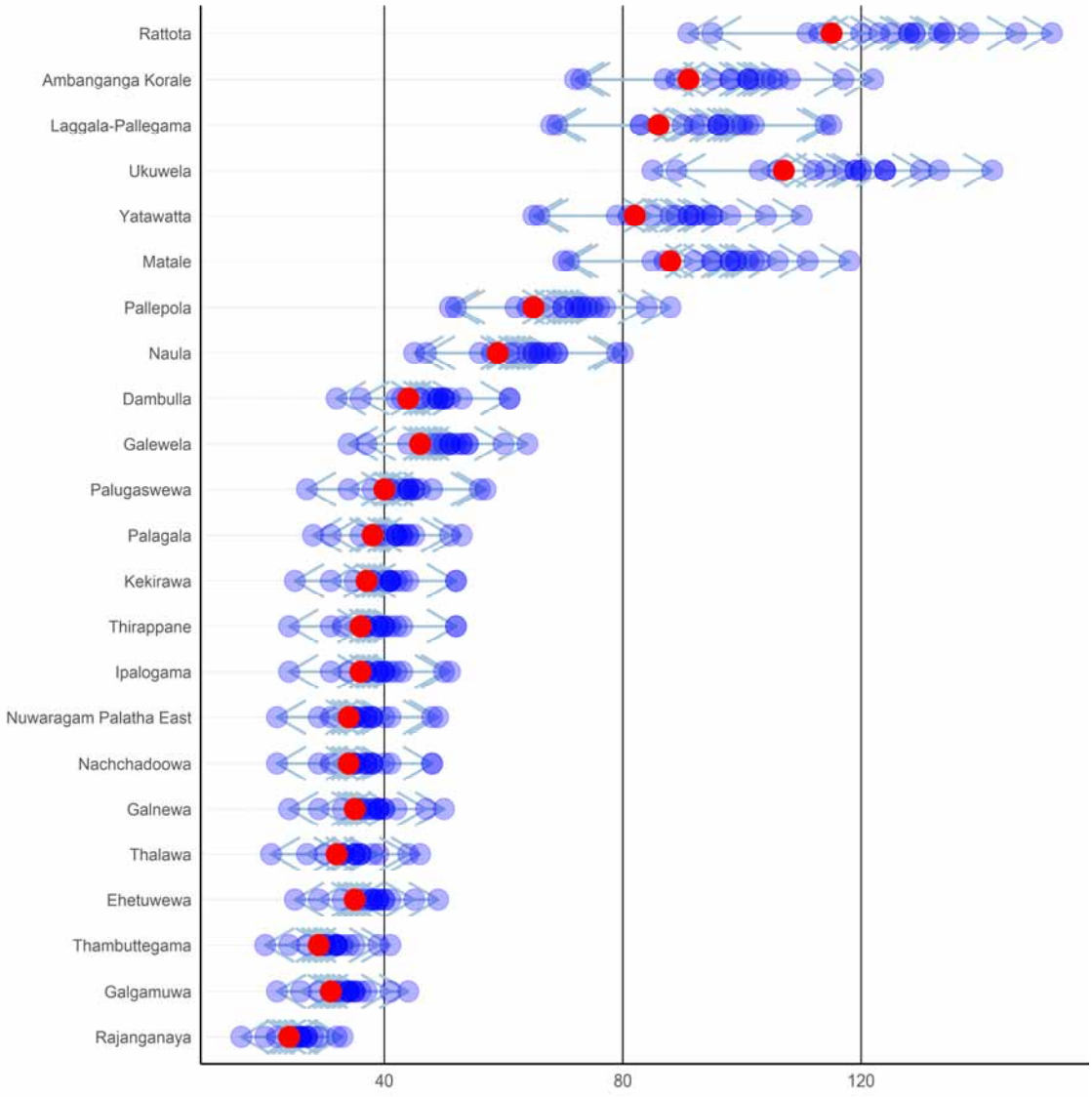


**Table 3.7.** Summary statistics of projected changes in July precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 24 | 25.82 | 16 | 25.3 | 26 | 27.0 | 33 | YES | |
| Galgamuwa | 31 | 33.71 | 22 | 33.3 | 34 | 35.0 | 44 | YES | |
| Thambuttegama | 29 | 31.41 | 20 | 30.3 | 32 | 32.0 | 41 | YES | |
| Ehetuwewa | 35 | 37.71 | 25 | 37.3 | 38 | 39.0 | 49 | YES | |
| Thalawa | 32 | 34.82 | 21 | 33.7 | 35 | 36.0 | 46 | YES | |
| Galnewa | 35 | 38.00 | 24 | 37.3 | 39 | 39.0 | 50 | YES | |
| Nachchadoowa | 34 | 36.76 | 22 | 35.3 | 37 | 38.0 | 48 | YES | |
| Nuwaragam Palatha East | 34 | 36.82 | 22 | 35.3 | 37 | 38.0 | 49 | YES | |
| Ipalogama | 36 | 39.06 | 24 | 37.7 | 39 | 40.0 | 51 | YES | |
| Thirappane | 36 | 39.18 | 24 | 37.7 | 39 | 40.0 | 52 | YES | |
| Kekirawa | 37 | 40.12 | 25 | 38.7 | 41 | 41.0 | 52 | YES | |
| Palagala | 38 | 41.35 | 28 | 40.7 | 42 | 43.0 | 53 | YES | |
| Palugaswewa | 40 | 43.35 | 27 | 41.7 | 44 | 44.7 | 57 | YES | |
| Galewela | 46 | 50.06 | 34 | 49.3 | 51 | 52.7 | 64 | YES | |
| Dambulla | 44 | 48.00 | 32 | 46.7 | 49 | 50.0 | 61 | YES | |
| Naula | 59 | 63.94 | 45 | 62.7 | 65 | 66.7 | 80 | YES | |
| Pallepola | 65 | 70.65 | 51 | 70.0 | 72 | 73.7 | 88 | YES | |
| Matale | 88 | 95.88 | 70 | 95.0 | 98 | 100.3 | 118 | YES | |
| Yatawatta | 82 | 89.12 | 65 | 88.3 | 91 | 93.3 | 110 | YES | |
| Ukuwela | 107 | 116.53 | 85 | 115.0 | 119 | 122.7 | 142 | YES | |
| Laggala-Pallegama | 86 | 93.76 | 68 | 92.3 | 96 | 98.3 | 115 | YES | |
| Ambanganga Korale | 91 | 98.76 | 72 | 98.0 | 101 | 103.3 | 122 | YES | |
| Rattota | 115 | 125.24 | 91 | 123.7 | 128 | 131.7 | 152 | YES | |

**Figure 3.8.** Projected changes in precipitation for August. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

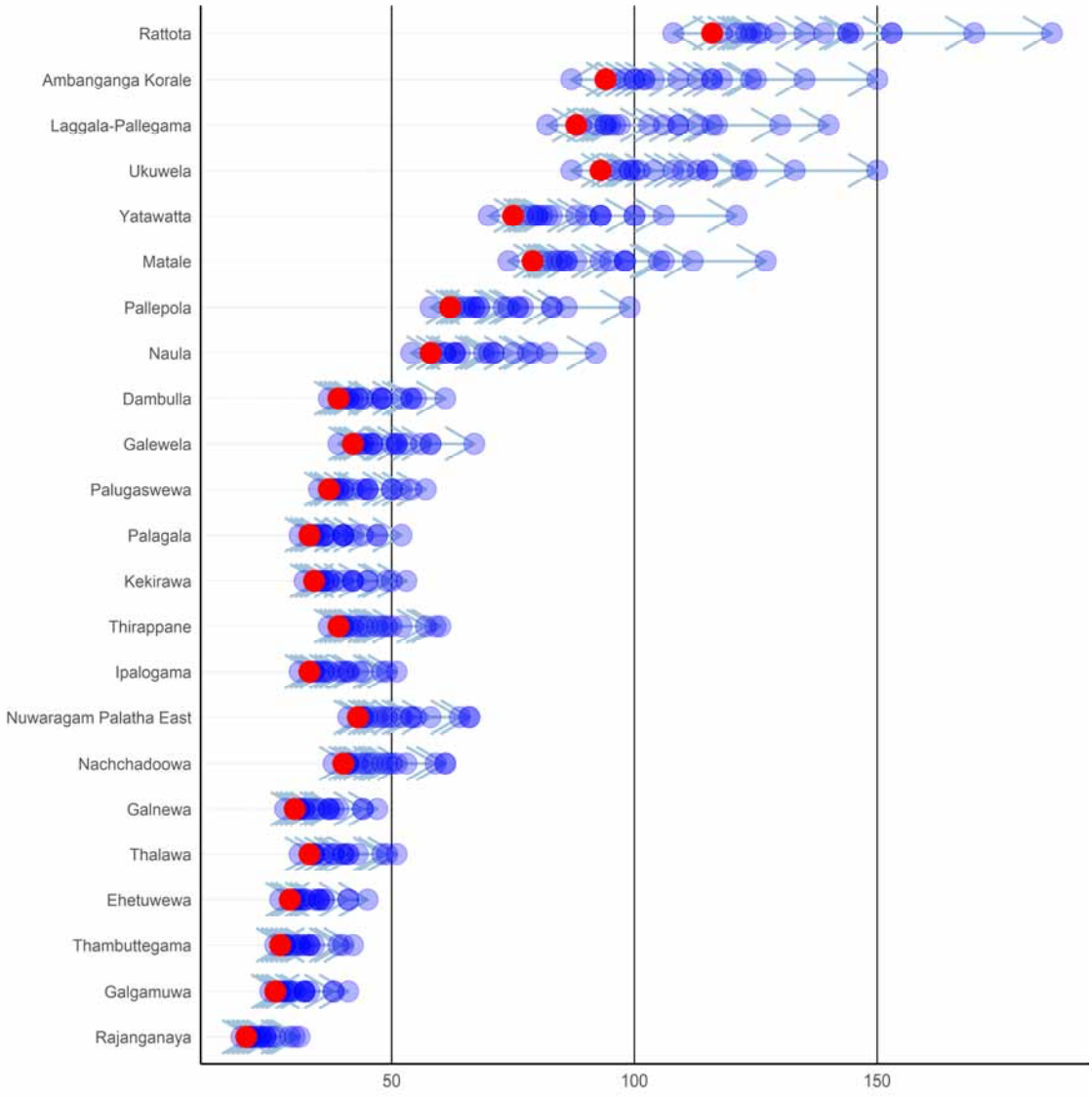


**Table 3.8.** Summary statistics of projected changes in August precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 20 | 23.82 | 19 | 21.3 | 23 | 24.0 | 31 | YES | |
| Galgamuwa | 26 | 31.06 | 25 | 28.3 | 30 | 32.0 | 41 | YES | |
| Thambuttegama | 27 | 32.06 | 26 | 29.3 | 31 | 33.0 | 42 | YES | |
| Ehetuwewa | 29 | 34.18 | 27 | 31.3 | 34 | 35.0 | 45 | YES | |
| Thalawa | 33 | 39.29 | 31 | 36.0 | 38 | 40.7 | 51 | YES | |
| Galnewa | 30 | 35.88 | 28 | 32.3 | 35 | 37.0 | 47 | YES | |
| Nachchadoowa | 40 | 47.76 | 38 | 43.3 | 46 | 49.7 | 61 | YES | |
| Nuwaragam Palatha East | 43 | 51.82 | 41 | 47.3 | 50 | 54.0 | 66 | YES | |
| Ipalogama | 33 | 39.59 | 31 | 36.0 | 39 | 41.0 | 51 | YES | |
| Thirappane | 39 | 46.71 | 37 | 42.3 | 45 | 48.7 | 60 | YES | |
| Kekirawa | 34 | 40.82 | 32 | 37.0 | 40 | 42.0 | 53 | YES | |
| Palagala | 33 | 39.47 | 31 | 36.0 | 40 | 40.0 | 52 | YES | |
| Palugaswewa | 37 | 44.29 | 35 | 40.0 | 44 | 45.0 | 57 | YES | |
| Galewela | 42 | 49.88 | 39 | 46.0 | 50 | 51.0 | 67 | YES | |
| Dambulla | 39 | 46.94 | 37 | 43.0 | 47 | 48.0 | 61 | YES | |
| Naula | 58 | 69.12 | 54 | 63.0 | 69 | 71.0 | 92 | YES | |
| Pallepola | 62 | 73.47 | 58 | 67.3 | 73 | 76.0 | 99 | YES | |
| Matale | 79 | 94.06 | 74 | 86.0 | 93 | 98.0 | 127 | YES | |
| Yatawatta | 75 | 89.18 | 70 | 81.3 | 88 | 93.0 | 121 | YES | |
| Ukuwela | 93 | 110.06 | 87 | 100.3 | 108 | 114.3 | 150 | YES | |
| Laggala-Pallegama | 88 | 104.82 | 82 | 95.3 | 103 | 109.0 | 140 | YES | |
| Ambanganga Korale | 94 | 111.47 | 87 | 102.0 | 109 | 116.0 | 150 | YES | |
| Rattota | 116 | 137.82 | 108 | 125.3 | 135 | 144.0 | 186 | YES | |

**Figure 3.9.** Projected changes in precipitation for September. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

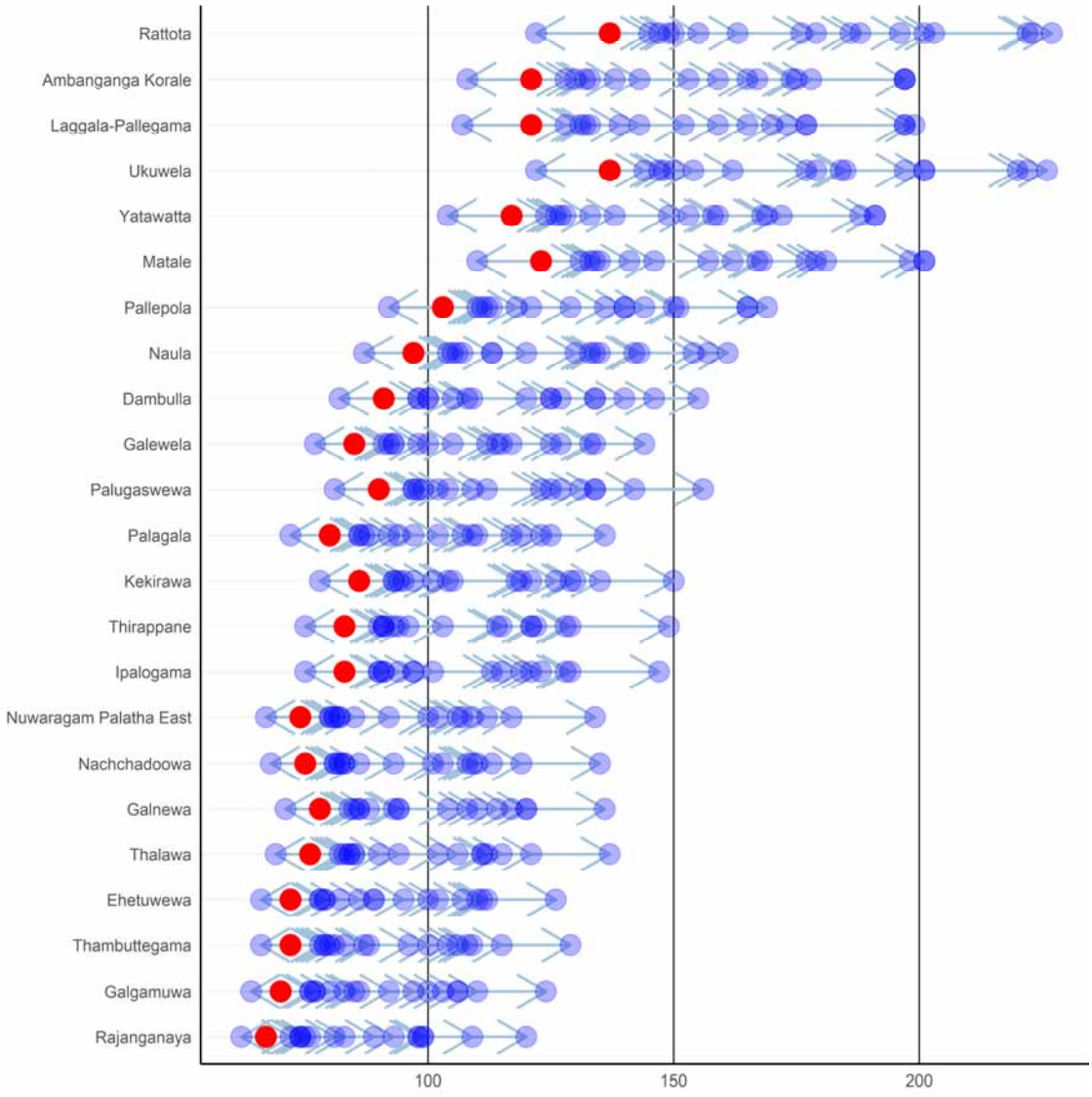


**Table 3.9.** Summary statistics of projected changes in September precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 67 | 86.82 | 62 | 75.3 | 83 | 96.3 | 120 | YES | |
| Galgamuwa | 70 | 90.71 | 64 | 81.0 | 86 | 99.0 | 124 | YES | |
| Thambuttegama | 72 | 93.41 | 66 | 81.7 | 88 | 102.7 | 129 | YES | |
| Ehetuwewa | 72 | 93.47 | 66 | 83.3 | 89 | 101.3 | 126 | YES | |
| Thalawa | 76 | 98.29 | 69 | 85.0 | 94 | 109.3 | 137 | YES | |
| Galnewa | 78 | 100.59 | 71 | 89.7 | 94 | 109.3 | 136 | YES | |
| Nachchadoowa | 75 | 96.29 | 68 | 83.0 | 93 | 106.3 | 135 | YES | |
| Nuwaragam Palatha East | 74 | 95.12 | 67 | 82.0 | 92 | 104.7 | 134 | YES | |
| Ipalogama | 83 | 107.12 | 75 | 95.0 | 101 | 117.7 | 147 | YES | |
| Thirappane | 83 | 107.24 | 75 | 93.3 | 103 | 119.0 | 149 | YES | |
| Kekirawa | 86 | 111.06 | 78 | 98.3 | 105 | 120.3 | 150 | YES | |
| Palagala | 80 | 102.94 | 72 | 92.7 | 102 | 109.7 | 136 | YES | |
| Palugaswewa | 90 | 115.94 | 81 | 102.7 | 112 | 126.3 | 156 | YES | |
| Galewela | 85 | 110.00 | 77 | 98.7 | 112 | 116.3 | 144 | YES | |
| Dambulla | 91 | 118.00 | 82 | 106.0 | 120 | 126.3 | 155 | YES | |
| Naula | 97 | 126.12 | 87 | 113.0 | 130 | 134.7 | 161 | YES | |
| Pallepola | 103 | 133.29 | 92 | 119.0 | 136 | 142.7 | 169 | YES | |
| Matale | 123 | 160.06 | 110 | 142.7 | 162 | 174.0 | 201 | YES | |
| Yatawatta | 117 | 151.65 | 104 | 134.7 | 153 | 165.0 | 191 | YES | |
| Ukuwela | 137 | 177.59 | 122 | 156.7 | 179 | 193.0 | 226 | YES | |
| Laggala-Pallegama | 121 | 157.59 | 107 | 140.3 | 159 | 172.0 | 199 | YES | |
| Ambanganga Korale | 121 | 157.29 | 108 | 139.7 | 159 | 171.7 | 197 | YES | |
| Rattota | 137 | 178.35 | 122 | 157.7 | 179 | 193.3 | 227 | YES | |

**Figure 3.10.** Projected changes in precipitation for October. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

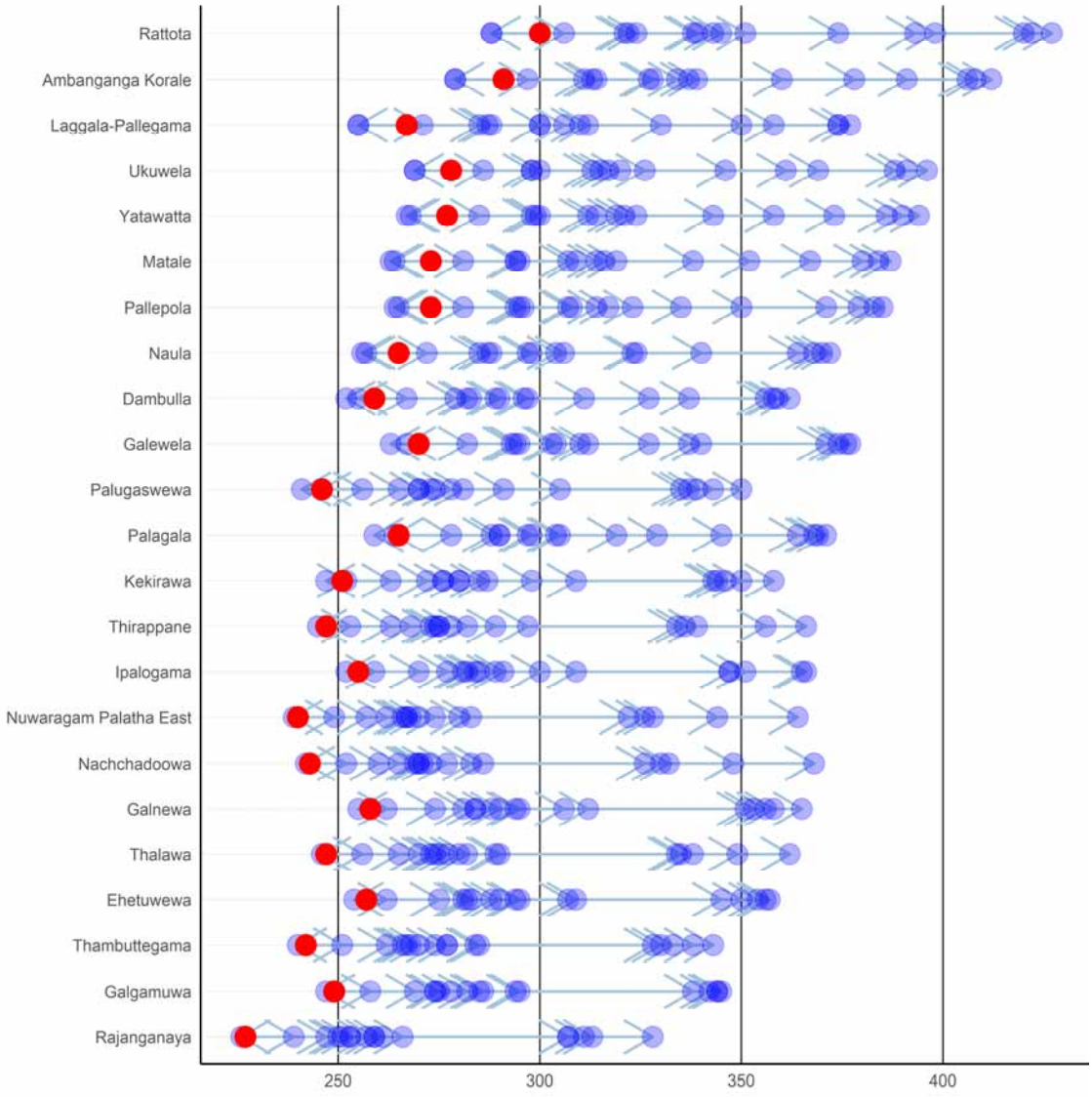


**Table 3.10.** Summary statistics of projected changes in October precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 227 | 269.82 | 226 | 253.0 | 259 | 264.3 | 328 | YES | |
| Galgamuwa | 249 | 295.88 | 247 | 276.0 | 285 | 294.7 | 345 | YES | |
| Thambuttegama | 242 | 287.82 | 240 | 268.7 | 277 | 284.7 | 343 | YES | |
| Ehetuwewa | 257 | 304.82 | 254 | 284.7 | 294 | 308.3 | 357 | YES | |
| Thalawa | 247 | 293.82 | 246 | 274.3 | 280 | 289.7 | 362 | YES | |
| Galnewa | 258 | 306.35 | 255 | 285.3 | 294 | 310.0 | 365 | YES | |
| Nachchadoowa | 243 | 289.53 | 242 | 270.0 | 273 | 285.0 | 368 | YES | |
| Nuwaragam Palatha East | 240 | 286.24 | 239 | 267.0 | 270 | 282.0 | 364 | YES | |
| Ipalogama | 255 | 303.24 | 252 | 282.7 | 289 | 306.0 | 366 | YES | |
| Thirappane | 247 | 294.29 | 245 | 274.3 | 278 | 294.3 | 366 | YES | |
| Kekirawa | 251 | 298.00 | 247 | 277.3 | 285 | 305.3 | 358 | YES | |
| Palagala | 265 | 314.00 | 259 | 292.3 | 304 | 325.7 | 371 | YES | |
| Palugaswewa | 246 | 291.41 | 241 | 271.0 | 278 | 300.3 | 350 | YES | |
| Galewela | 270 | 319.12 | 263 | 297.7 | 310 | 333.7 | 377 | YES | |
| Dambulla | 259 | 305.88 | 252 | 285.0 | 296 | 321.7 | 362 | YES | |
| Naula | 265 | 312.41 | 256 | 291.0 | 304 | 323.7 | 372 | YES | |
| Pallepola | 273 | 321.59 | 264 | 299.7 | 314 | 331.0 | 385 | YES | |
| Matale | 273 | 321.41 | 263 | 299.0 | 314 | 331.7 | 387 | YES | |
| Yatawatta | 277 | 326.53 | 267 | 304.0 | 319 | 336.7 | 394 | YES | |
| Ukuwela | 278 | 327.18 | 269 | 304.3 | 317 | 339.3 | 396 | YES | |
| Laggala-Pallegama | 267 | 313.65 | 255 | 292.0 | 306 | 324.0 | 377 | YES | |
| Ambanganga Korale | 291 | 341.94 | 279 | 318.3 | 334 | 353.0 | 412 | YES | |
| Rattota | 300 | 352.88 | 288 | 328.7 | 343 | 366.3 | 427 | YES | |

**Figure 3.11.** Projected changes in precipitation for November. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

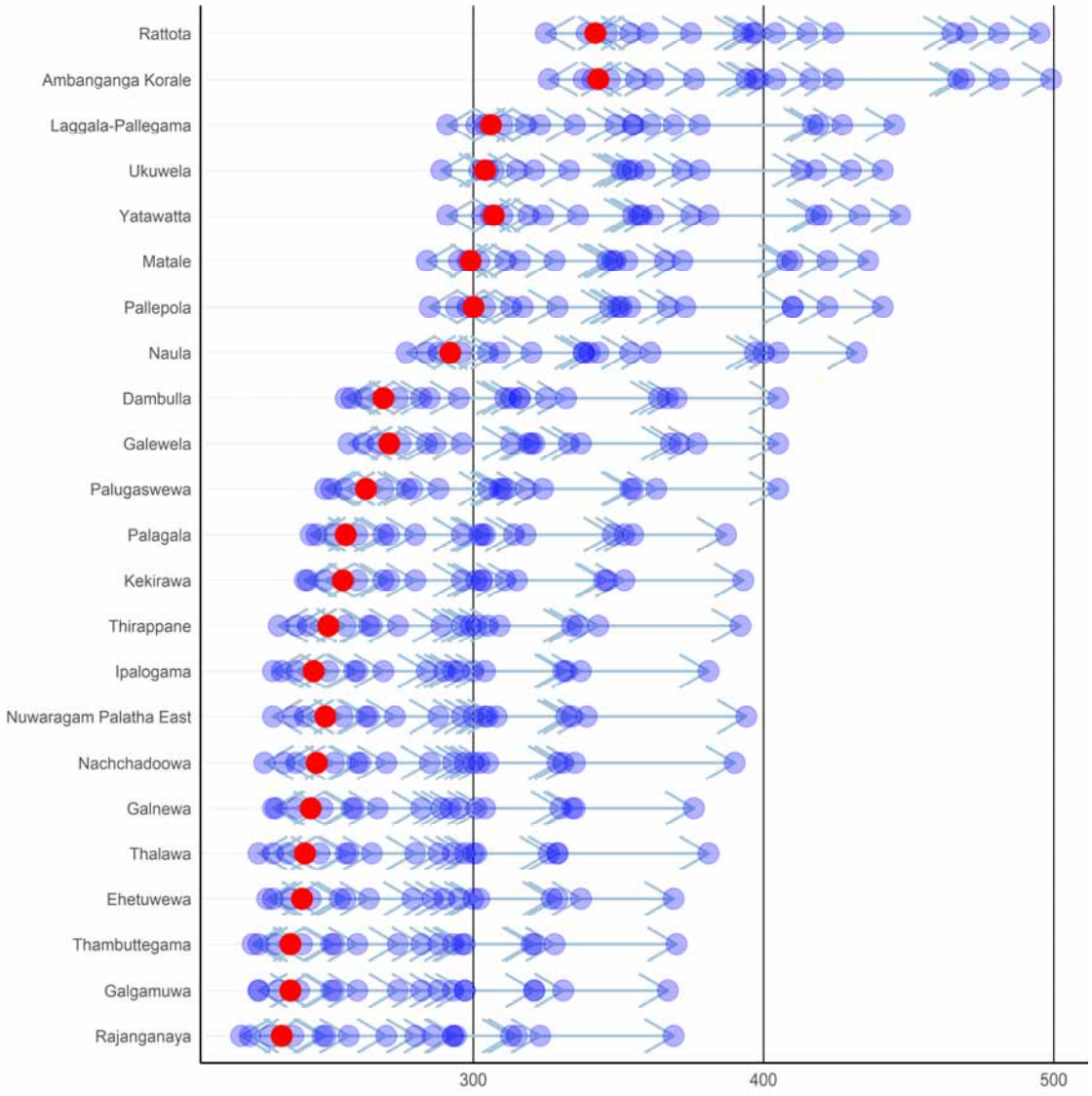


**Table 3.11.** Summary statistics of projected changes in November precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 234 | 276.53 | 220 | 251.7 | 280 | 293.0 | 369 | YES | |
| Galgamuwa | 237 | 279.94 | 226 | 254.7 | 282 | 295.7 | 367 | YES | |
| Thambuttegama | 237 | 279.71 | 224 | 254.7 | 282 | 295.0 | 370 | YES | |
| Ehetuwewa | 241 | 284.06 | 229 | 258.7 | 286 | 298.3 | 369 | YES | |
| Thalawa | 242 | 284.82 | 226 | 259.7 | 288 | 299.0 | 381 | YES | |
| Galnewa | 244 | 286.59 | 231 | 261.7 | 289 | 299.0 | 376 | YES | |
| Nachchadoowa | 246 | 288.94 | 228 | 264.0 | 293 | 301.3 | 390 | YES | |
| Nuwaragam Palatha East | 249 | 292.12 | 231 | 267.0 | 296 | 304.7 | 394 | YES | |
| Ipalogama | 245 | 287.59 | 231 | 263.0 | 290 | 298.3 | 381 | YES | |
| Thirappane | 250 | 292.82 | 233 | 268.0 | 296 | 303.7 | 392 | YES | |
| Kekirawa | 255 | 298.76 | 242 | 274.0 | 301 | 308.3 | 393 | YES | |
| Palagala | 256 | 300.06 | 244 | 274.0 | 302 | 310.7 | 387 | YES | |
| Palugaswewa | 263 | 307.24 | 249 | 282.0 | 309 | 315.7 | 405 | YES | |
| Galewela | 271 | 317.18 | 257 | 290.0 | 319 | 329.0 | 405 | YES | |
| Dambulla | 269 | 313.65 | 256 | 288.3 | 313 | 322.0 | 405 | YES | |
| Naula | 292 | 340.41 | 277 | 312.7 | 338 | 350.3 | 432 | YES | |
| Pallepola | 300 | 350.88 | 285 | 321.0 | 350 | 362.7 | 441 | YES | |
| Matale | 299 | 349.65 | 284 | 320.0 | 348 | 361.7 | 436 | YES | |
| Yatawatta | 307 | 358.53 | 291 | 328.0 | 357 | 370.7 | 447 | YES | |
| Ukuwela | 304 | 355.41 | 289 | 325.0 | 353 | 367.7 | 441 | YES | |
| Laggala-Pallegama | 306 | 356.29 | 291 | 327.0 | 355 | 366.3 | 445 | YES | |
| Ambanganga Korale | 343 | 399.71 | 326 | 366.7 | 397 | 412.0 | 499 | YES | |
| Rattota | 342 | 398.88 | 325 | 365.0 | 396 | 411.3 | 495 | YES | |

**Figure 3.12.** Projected changes in precipitation for December. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

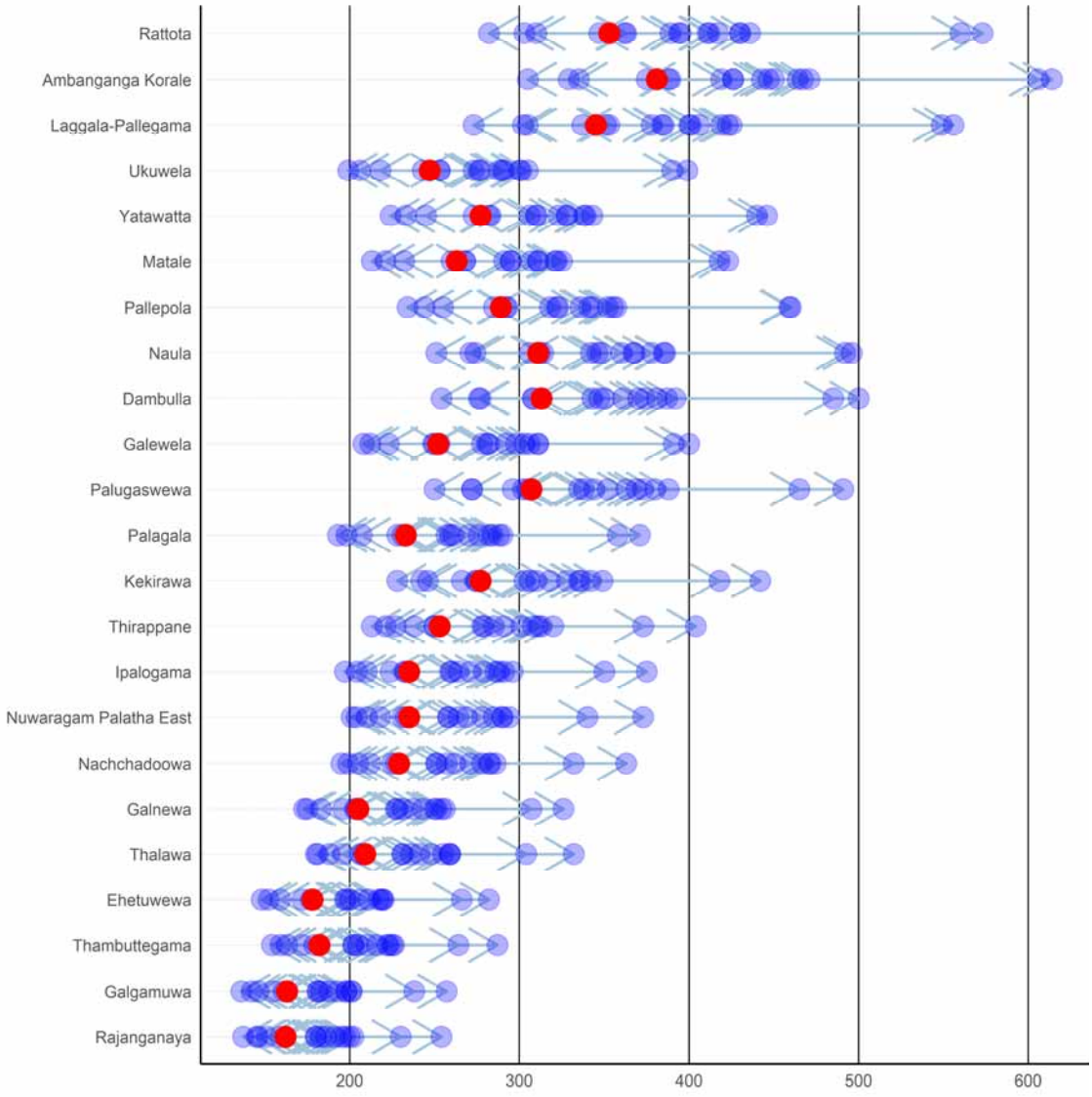


**Table 3.12.** Summary statistics of projected changes in December precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 162 | 182.24 | 137 | 168.0 | 183 | 193.7 | 254 | YES | |
| Galgamuwa | 163 | 183.65 | 136 | 169.0 | 183 | 196.3 | 257 | YES | |
| Thambuttegama | 182 | 205.35 | 154 | 188.7 | 205 | 220.0 | 287 | YES | |
| Ehetuwewa | 178 | 201.24 | 148 | 184.3 | 200 | 215.0 | 282 | YES | |
| Thalawa | 209 | 236.12 | 180 | 215.7 | 236 | 252.7 | 332 | YES | |
| Galnewa | 205 | 232.00 | 173 | 211.7 | 231 | 247.7 | 326 | YES | |
| Nachchadoowa | 229 | 257.59 | 195 | 235.0 | 257 | 275.7 | 363 | YES | |
| Nuwaragam Palatha East | 235 | 264.47 | 201 | 241.3 | 264 | 282.7 | 373 | YES | |
| Ipalogama | 235 | 265.82 | 197 | 241.7 | 264 | 283.7 | 375 | YES | |
| Thirappane | 253 | 286.00 | 213 | 259.3 | 285 | 305.7 | 404 | YES | |
| Kekirawa | 277 | 312.82 | 228 | 284.3 | 310 | 332.7 | 442 | YES | |
| Palagala | 233 | 263.88 | 193 | 241.0 | 261 | 280.0 | 371 | YES | |
| Palugaswewa | 307 | 346.76 | 250 | 315.0 | 344 | 367.0 | 491 | YES | |
| Galewela | 252 | 285.18 | 208 | 261.3 | 282 | 301.3 | 400 | YES | |
| Dambulla | 313 | 354.47 | 254 | 323.0 | 350 | 372.7 | 500 | YES | |
| Naula | 311 | 352.71 | 251 | 323.3 | 348 | 367.7 | 496 | YES | |
| Pallepola | 289 | 327.59 | 234 | 301.3 | 323 | 342.3 | 460 | YES | |
| Matale | 263 | 298.88 | 213 | 275.7 | 295 | 311.0 | 423 | YES | |
| Yatawatta | 277 | 314.76 | 224 | 290.7 | 310 | 328.0 | 446 | YES | |
| Ukuwela | 247 | 280.12 | 199 | 259.7 | 277 | 290.7 | 399 | YES | |
| Laggala-Pallegama | 345 | 391.00 | 273 | 361.3 | 385 | 404.3 | 556 | YES | |
| Ambanganga Korale | 381 | 432.59 | 305 | 399.0 | 426 | 449.0 | 614 | YES | |
| Rattota | 353 | 400.82 | 282 | 371.7 | 395 | 415.3 | 573 | YES | |

## 4. Projected changes in monthly precipitation for the project sites for a low emissions scenario (RCP 2.6)

Similar criteria to results for the high emissions scenario and with the same criteria to identify consensus among GCMs and **likely** climatic changes, showed that there was no evidence for precipation decreases in January during the *Maha* season. These results were obtained with a smaller set of GCMs and relative changes were small in lowland areas (Figure and Table 4.1).

In some of the driest lowland locations, precipitation is likely to decrease in April (during the sowing period of the *Yala* season; Figure and Table 4.4).

Precipitation is likely to increase and especially in lowland areas in July (Figure and Table 4.7), although absolute changes are small.

For all locations, it is likely that precipitation will increase from August to December (Figures and Tables 4.8 to 4.12), with likely consequences for crop growth during the *Maha* season. These results are similar to results obtained with the medium and high emission scenarios, and therefore it is recommended to invest in appropriate infrastructure to deal with flooding and erosion, especially in the highland areas.

**Figure 4.1.** Projected changes in precipitation for January. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

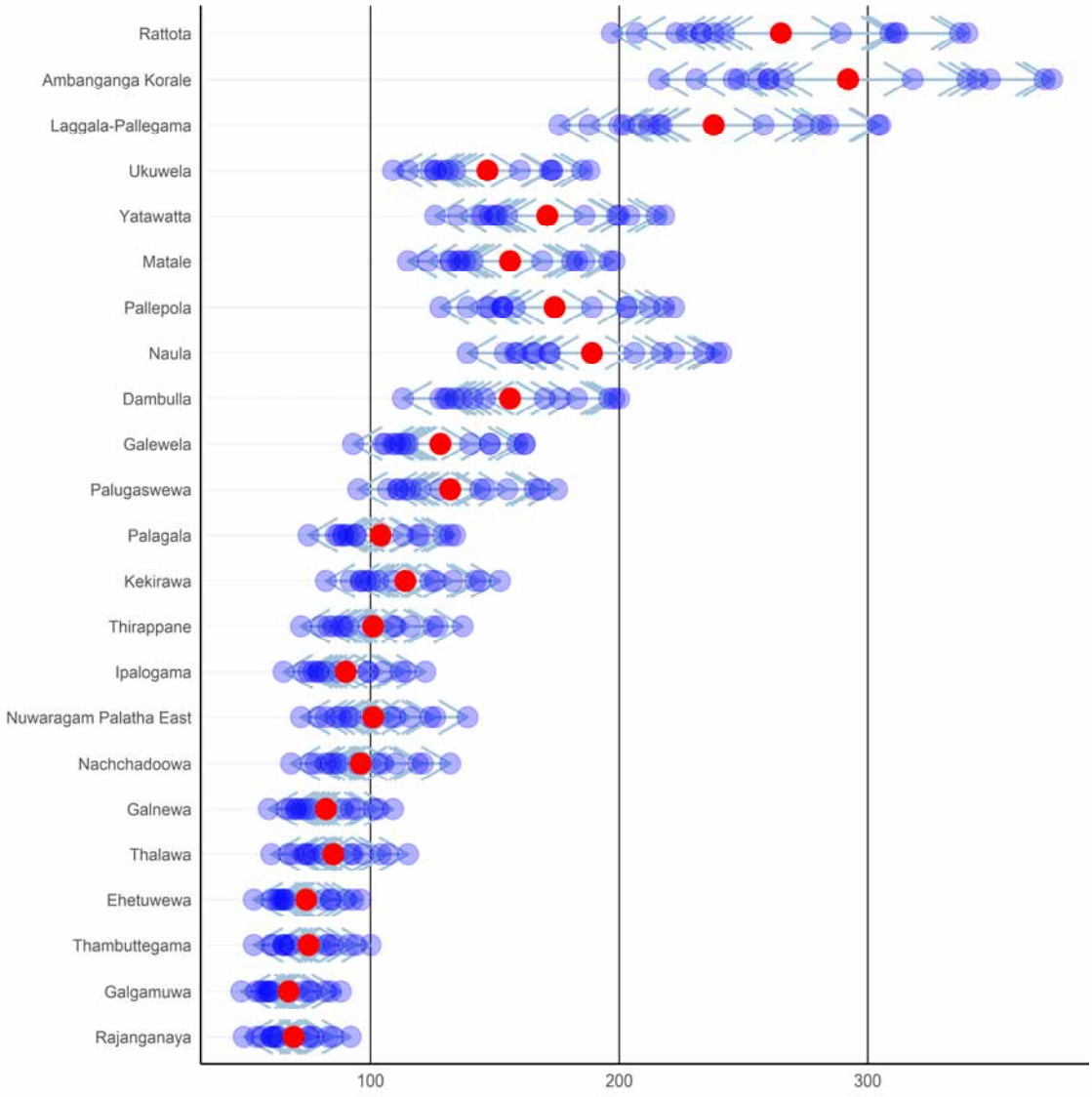


**Table 4.1.** Summary statistics of projected changes in January precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 69 | 68.00 | 49 | 60.3 | 62.5 | 75.0 | 92 | | |
| Galgamuwa | 67 | 66.36 | 48 | 58.3 | 59.5 | 74.3 | 88 | | |
| Thambuttegama | 75 | 74.21 | 53 | 65.0 | 67.5 | 82.7 | 100 | | |
| Ehetuwewa | 74 | 73.29 | 53 | 64.3 | 65.5 | 83.0 | 96 | | |
| Thalawa | 85 | 84.57 | 60 | 74.3 | 79 | 92.7 | 115 | | |
| Galnewa | 82 | 81.64 | 59 | 70.7 | 75 | 91.0 | 109 | | |
| Nachchadoowa | 96 | 96.14 | 68 | 84.7 | 91 | 104.3 | 132 | | |
| Nuwaragam Palatha East | 101 | 100.93 | 72 | 89.0 | 96 | 109.3 | 139 | | |
| Ipalogama | 90 | 90.57 | 65 | 79.0 | 84.5 | 99.0 | 122 | | |
| Thirappane | 101 | 100.79 | 72 | 88.3 | 95 | 109.7 | 137 | | |
| Kekirawa | 114 | 114.07 | 82 | 98.7 | 106 | 125.3 | 152 | | |
| Palagala | 104 | 103.71 | 75 | 89.7 | 94 | 117.0 | 134 | | |
| Palugaswewa | 132 | 132.57 | 95 | 114.7 | 124 | 145.3 | 175 | | |
| Galewela | 128 | 127.36 | 93 | 110.7 | 114.5 | 145.3 | 162 | | |
| Dambulla | 156 | 155.93 | 113 | 135.0 | 143.5 | 174.0 | 200 | | |
| Naula | 189 | 188.86 | 139 | 165.3 | 172 | 213.3 | 241 | | |
| Pallepola | 174 | 173.29 | 128 | 153.0 | 155.5 | 198.3 | 222 | | |
| Matale | 156 | 154.64 | 115 | 135.3 | 139.5 | 177.0 | 198 | | |
| Yatawatta | 171 | 169.71 | 126 | 148.7 | 153 | 194.7 | 218 | | |
| Ukuwela | 147 | 146.07 | 109 | 127.0 | 132.5 | 168.0 | 188 | | |
| Laggala-Pallegama | 238 | 237.50 | 176 | 209.3 | 216.5 | 268.7 | 305 | | |
| Ambanganga Korale | 292 | 291.36 | 216 | 257.3 | 263 | 332.7 | 374 | | |
| Rattota | 265 | 264.14 | 197 | 233.0 | 240 | 302.3 | 340 | | |

**Figure 4.2.** Projected changes in precipitation for February. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

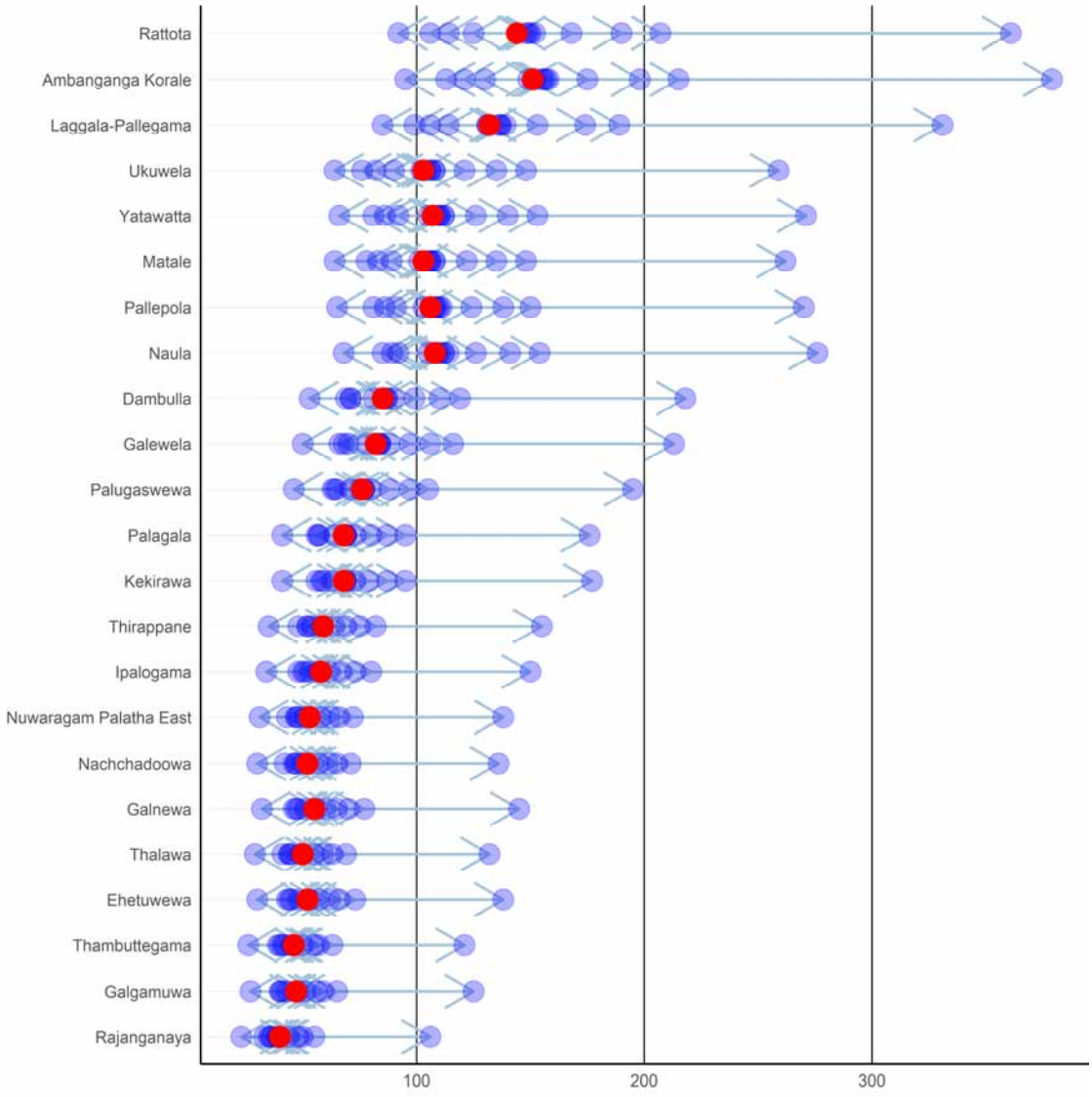


**Table 4.2.** Summary statistics of projected changes in February precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| **Rajanganaya** | 40 | 44.57 | 23 | 37.0 | 39.5 | 42.7 | 106 | | |
| **Galgamuwa** | 47 | 52.57 | 27 | 44.3 | 47 | 50.0 | 125 | | |
| **Thambuttegama** | 46 | 51.21 | 26 | 43.0 | 46 | 48.7 | 121 | | |
| **Ehetuwewa** | 52 | 58.21 | 30 | 49.3 | 52 | 55.7 | 138 | | |
| **Thalawa** | 50 | 55.71 | 29 | 46.3 | 50 | 53.3 | 132 | | |
| **Galnewa** | 55 | 61.57 | 32 | 52.3 | 55 | 58.7 | 145 | | |
| **Nachchadoowa** | 52 | 57.71 | 30 | 48.0 | 52 | 55.3 | 136 | | |
| **Nuwaragam Palatha East** | 53 | 58.71 | 31 | 49.0 | 53 | 56.3 | 138 | | |
| **Ipalogama** | 58 | 64.21 | 34 | 54.3 | 58 | 60.7 | 150 | | |
| **Thirappane** | 59 | 65.79 | 35 | 55.3 | 59 | 62.3 | 155 | | |
| **Kekirawa** | 68 | 75.93 | 41 | 64.7 | 69 | 71.7 | 177 | | |
| **Palagala** | 68 | 75.86 | 41 | 65.7 | 69 | 71.7 | 176 | | |
| **Palugaswewa** | 76 | 84.29 | 46 | 72.3 | 77 | 79.0 | 195 | | |
| **Galewela** | 82 | 91.93 | 50 | 79.7 | 84 | 86.7 | 213 | | |
| **Dambulla** | 85 | 94.71 | 53 | 82.3 | 86.5 | 89.0 | 218 | | |
| **Naula** | 108 | 120.93 | 68 | 106.3 | 111 | 113.3 | 276 | | |
| **Pallepola** | 106 | 118.14 | 65 | 104.7 | 108.5 | 110.7 | 270 | | |
| **Matale** | 103 | 115.36 | 64 | 102.3 | 106 | 108.0 | 262 | | |
| **Yatawatta** | 107 | 119.50 | 66 | 106.3 | 110 | 112.0 | 271 | | |
| **Ukuwela** | 103 | 114.93 | 64 | 102.7 | 106 | 108.0 | 259 | | |
| **Laggala-Pallegama** | 132 | 147.29 | 85 | 131.0 | 136.5 | 138.3 | 331 | | |
| **Ambanganga Korale** | 151 | 168.07 | 95 | 150.0 | 155.5 | 157.7 | 379 | | |
| **Rattota** | 144 | 160.71 | 92 | 144.0 | 148.5 | 151.3 | 361 | YES | |

**Figure 4.3.** Projected changes in precipitation for March. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

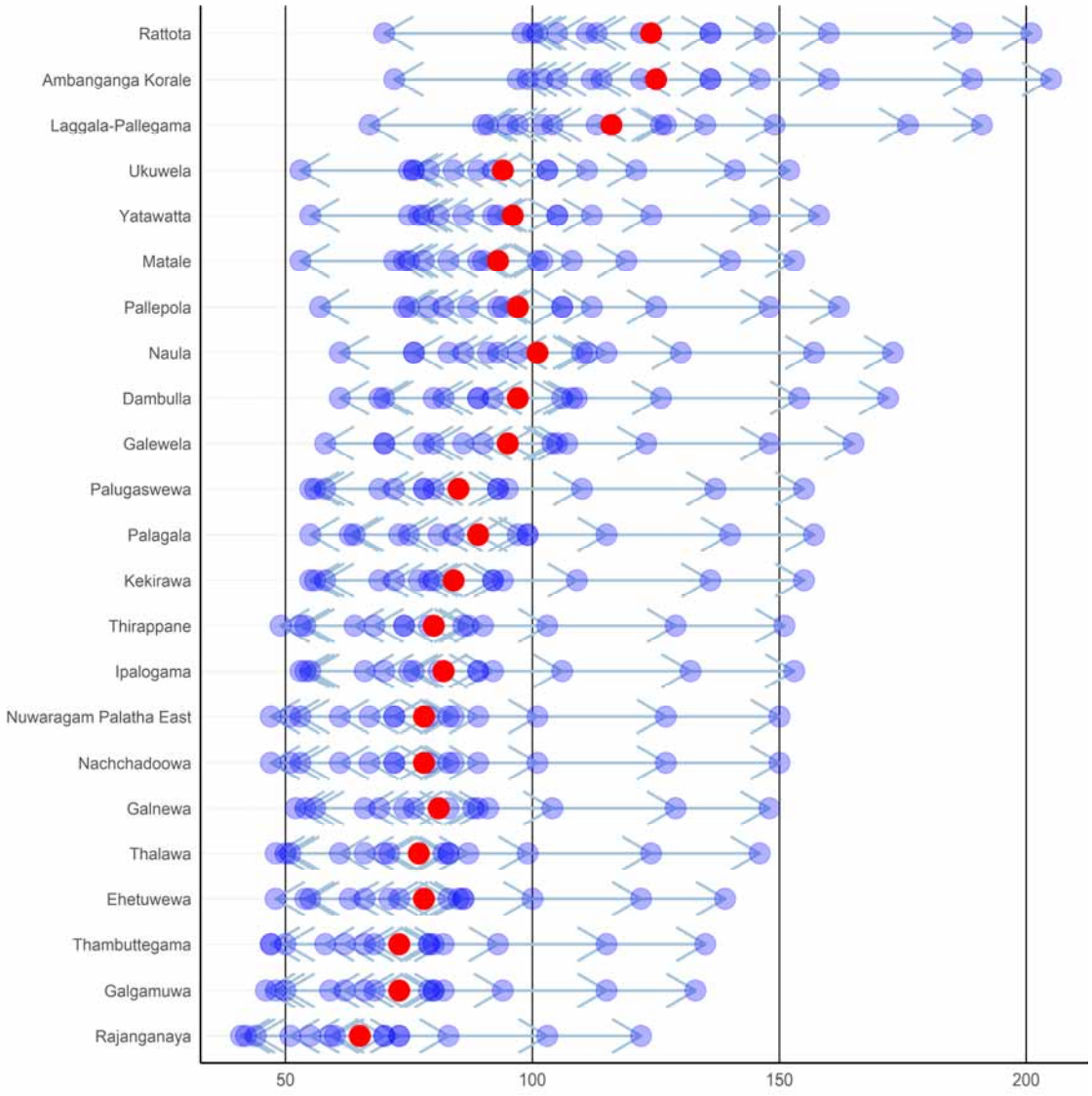


**Table 4.3.** Summary statistics of projected changes in March precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 65 | 67.57 | 41 | 56.3 | 65 | 72.0 | 122 | | |
| Galgamuwa | 73 | 75.86 | 46 | 63.3 | 73.5 | 80.0 | 133 | | |
| Thambuttegama | 73 | 75.79 | 47 | 63.3 | 73.5 | 79.7 | 135 | | |
| Ehetuwewa | 78 | 80.79 | 48 | 67.7 | 78 | 85.7 | 139 | | |
| Thalawa | 77 | 80.07 | 48 | 67.3 | 76.5 | 83.0 | 146 | | |
| Galnewa | 81 | 84.21 | 52 | 70.7 | 79.5 | 88.7 | 148 | | |
| Nachchadoowa | 78 | 81.14 | 47 | 68.7 | 75.5 | 83.7 | 150 | | |
| Nuwaragam Palatha East | 78 | 81.14 | 47 | 68.7 | 75.5 | 83.7 | 150 | | |
| Ipalogama | 82 | 85.07 | 53 | 71.7 | 78.5 | 89.0 | 153 | | |
| Thirappane | 80 | 82.93 | 49 | 70.0 | 76.5 | 86.7 | 151 | | |
| Kekirawa | 84 | 87.43 | 55 | 73.7 | 79.5 | 92.0 | 155 | | |
| Palagala | 89 | 92.21 | 55 | 77.0 | 86.5 | 98.3 | 157 | | |
| Palugaswewa | 85 | 87.79 | 55 | 74.0 | 79 | 93.0 | 155 | | |
| Galewela | 95 | 98.50 | 58 | 82.0 | 92.5 | 104.7 | 165 | | |
| Dambulla | 97 | 100.50 | 61 | 84.3 | 90.5 | 107.3 | 172 | | |
| Naula | 101 | 104.21 | 61 | 87.7 | 95 | 110.7 | 173 | | |
| Pallepola | 97 | 100.00 | 57 | 83.7 | 93.5 | 106.0 | 162 | | |
| Matale | 93 | 95.50 | 53 | 79.7 | 89.5 | 101.7 | 153 | | |
| Yatawatta | 96 | 99.07 | 55 | 82.7 | 92.5 | 105.0 | 158 | | |
| Ukuwela | 94 | 96.79 | 53 | 80.7 | 90.5 | 103.0 | 152 | | |
| Laggala-Pallegama | 116 | 118.79 | 67 | 98.7 | 108.5 | 126.7 | 191 | | |
| Ambanganga Korale | 125 | 128.21 | 72 | 107.3 | 118 | 136.0 | 205 | | |
| Rattota | 124 | 127.64 | 70 | 107.0 | 117.5 | 136.0 | 201 | | |

**Figure 4.4.** Projected changes in precipitation for April. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

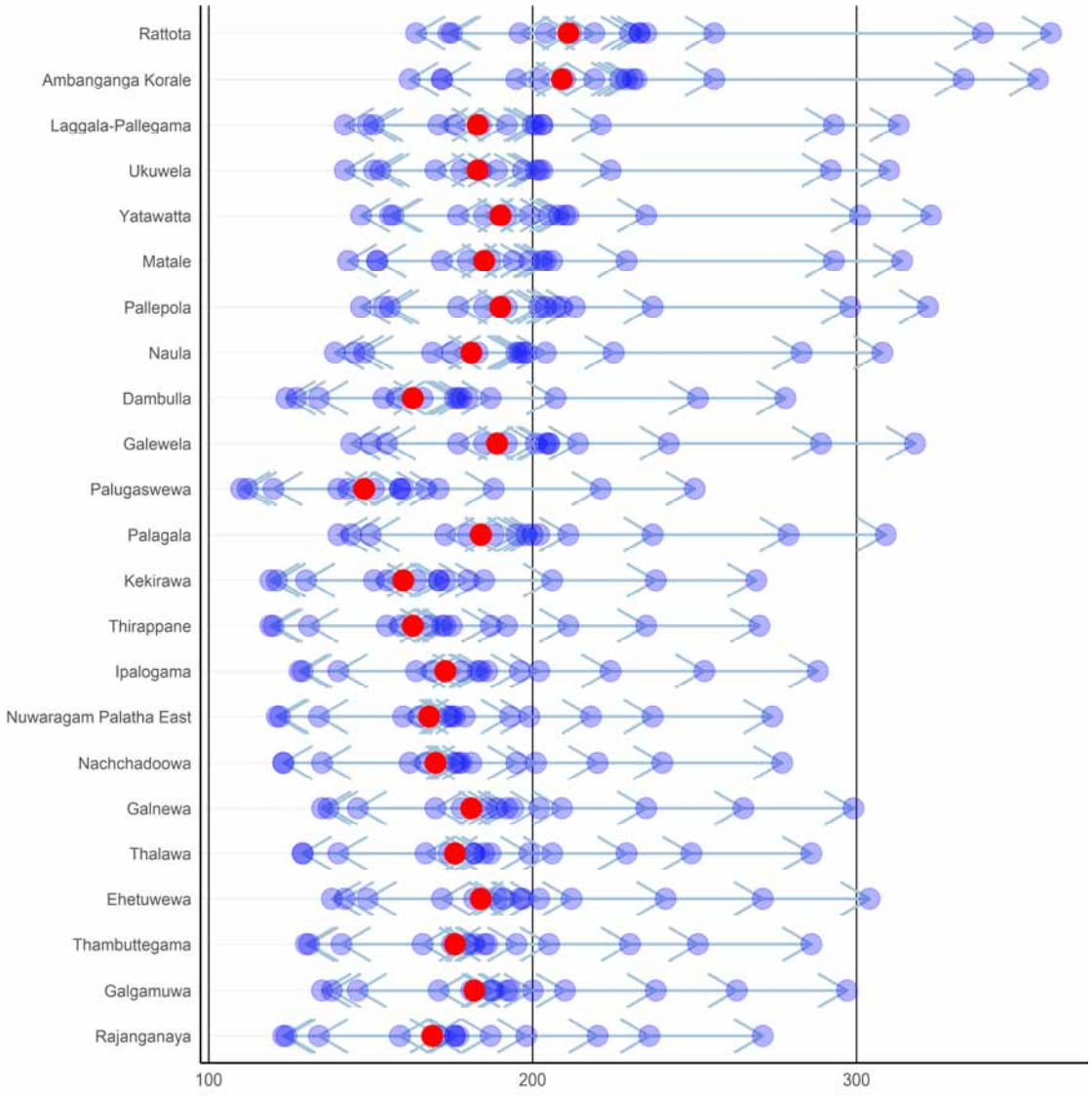


**Table 4.4.** Summary statistics of projected changes in April precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| **Rajanganaya** | 169 | 180.07 | 123 | 169.7 | 176 | 183.7 | 271 | YES | |
| **Galgamuwa** | 182 | 195.64 | 135 | 183.0 | 190 | 197.7 | 297 | YES | |
| **Thambuttegama** | 176 | 188.79 | 130 | 176.7 | 183.5 | 192.0 | 286 | YES | |
| **Ehetuwewa** | 184 | 199.00 | 138 | 184.3 | 193.5 | 200.3 | 304 | YES | |
| **Thalawa** | 176 | 188.86 | 129 | 176.7 | 183.5 | 195.0 | 286 | YES | |
| **Galnewa** | 181 | 195.50 | 135 | 180.7 | 190.5 | 199.3 | 299 | | |
| **Nachchadoowa** | 170 | 182.50 | 123 | 170.0 | 177.5 | 190.3 | 277 | YES | |
| **Nuwaragam Palatha East** | 168 | 180.50 | 121 | 168.0 | 175.5 | 188.3 | 274 | YES | |
| **Ipalogama** | 173 | 187.43 | 128 | 172.0 | 183.5 | 192.7 | 288 | | |
| **Thirappane** | 163 | 176.21 | 119 | 162.0 | 172.5 | 183.0 | 270 | | |
| **Kekirawa** | 160 | 173.79 | 119 | 158.0 | 171 | 177.7 | 269 | | |
| **Palagala** | 184 | 200.43 | 140 | 182.7 | 196.5 | 201.3 | 309 | | |
| **Palugaswewa** | 148 | 160.79 | 110 | 145.7 | 159 | 164.7 | 250 | | |
| **Galewela** | 189 | 205.79 | 144 | 187.3 | 202.5 | 205.0 | 318 | | |
| **Dambulla** | 163 | 178.36 | 124 | 160.7 | 176.5 | 179.3 | 278 | | |
| **Naula** | 181 | 197.50 | 139 | 177.7 | 195.5 | 197.7 | 308 | | |
| **Pallepola** | 190 | 207.36 | 147 | 187.3 | 203 | 208.3 | 322 | | |
| **Matale** | 185 | 202.00 | 143 | 182.3 | 196.5 | 203.7 | 314 | | |
| **Yatawatta** | 190 | 207.57 | 147 | 187.3 | 202 | 209.3 | 323 | | |
| **Ukuwela** | 183 | 199.71 | 142 | 180.0 | 193 | 201.7 | 310 | | |
| **Laggala-Pallegama** | 183 | 199.93 | 142 | 178.7 | 196 | 202.3 | 313 | | |
| **Ambanganga Korale** | 209 | 228.29 | 162 | 204.7 | 223 | 230.3 | 356 | | |
| **Rattota** | 211 | 230.71 | 164 | 206.7 | 224.5 | 233.0 | 360 | | |

**Figure 4.5.** Projected changes in precipitation for May. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

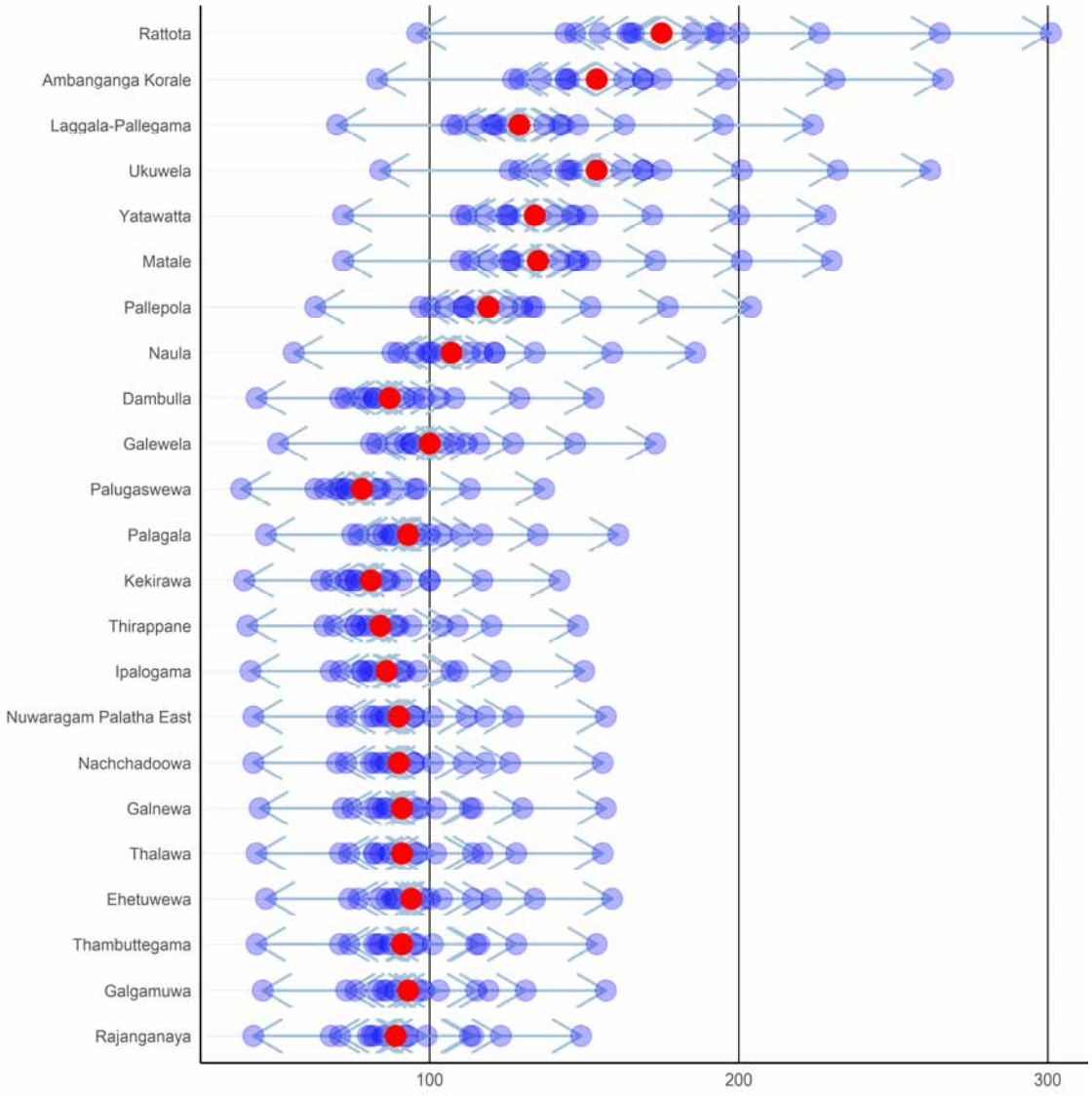


**Table 4.5.** Summary statistics of projected changes in May precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 89 | 92.36 | 43 | 81.3 | 88.5 | 97.0 | 149 | | |
| Galgamuwa | 93 | 96.93 | 46 | 85.3 | 92.5 | 101.3 | 157 | | |
| Thambuttegama | 91 | 95.00 | 44 | 83.3 | 91 | 99.3 | 154 | | |
| Ehetuwewa | 94 | 98.14 | 47 | 86.7 | 93.5 | 102.7 | 159 | | |
| Thalawa | 91 | 95.14 | 44 | 82.7 | 91 | 100.0 | 156 | | |
| Galnewa | 91 | 95.43 | 45 | 83.7 | 90.5 | 100.3 | 157 | | |
| Nachchadoowa | 90 | 94.36 | 43 | 82.7 | 90.5 | 99.0 | 156 | | |
| Nuwaragam Palatha East | 90 | 94.57 | 43 | 82.7 | 90.5 | 99.0 | 157 | | |
| Ipalogama | 86 | 90.43 | 42 | 78.7 | 86 | 94.7 | 150 | | |
| Thirappane | 84 | 88.57 | 41 | 76.7 | 84.5 | 92.7 | 148 | | |
| Kekirawa | 81 | 85.36 | 40 | 74.7 | 81 | 89.7 | 142 | | |
| Palagala | 93 | 97.57 | 47 | 85.7 | 92.5 | 102.7 | 161 | | |
| Palugaswewa | 78 | 82.21 | 39 | 71.7 | 78 | 86.7 | 137 | | |
| Galewela | 100 | 105.14 | 51 | 92.7 | 99.5 | 110.7 | 173 | | |
| Dambulla | 87 | 92.00 | 44 | 80.7 | 87 | 97.0 | 153 | | |
| Naula | 107 | 112.86 | 56 | 99.3 | 107 | 119.7 | 186 | | |
| Pallepola | 119 | 125.29 | 63 | 111.0 | 118.5 | 132.0 | 204 | | |
| Matale | 135 | 141.86 | 72 | 126.0 | 134.5 | 147.7 | 230 | | |
| Yatawatta | 134 | 140.86 | 72 | 125.0 | 133 | 146.7 | 228 | | |
| Ukuwela | 154 | 162.86 | 84 | 144.3 | 154 | 169.0 | 262 | | |
| Laggala-Pallegama | 129 | 136.86 | 70 | 120.3 | 129.5 | 142.7 | 224 | | |
| Ambanganga Korale | 154 | 162.64 | 83 | 144.0 | 154 | 169.0 | 266 | | |
| Rattota | 175 | 185.64 | 96 | 164.3 | 175.5 | 192.7 | 301 | | |

**Figure 4.6.** Projected changes in precipitation for June. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

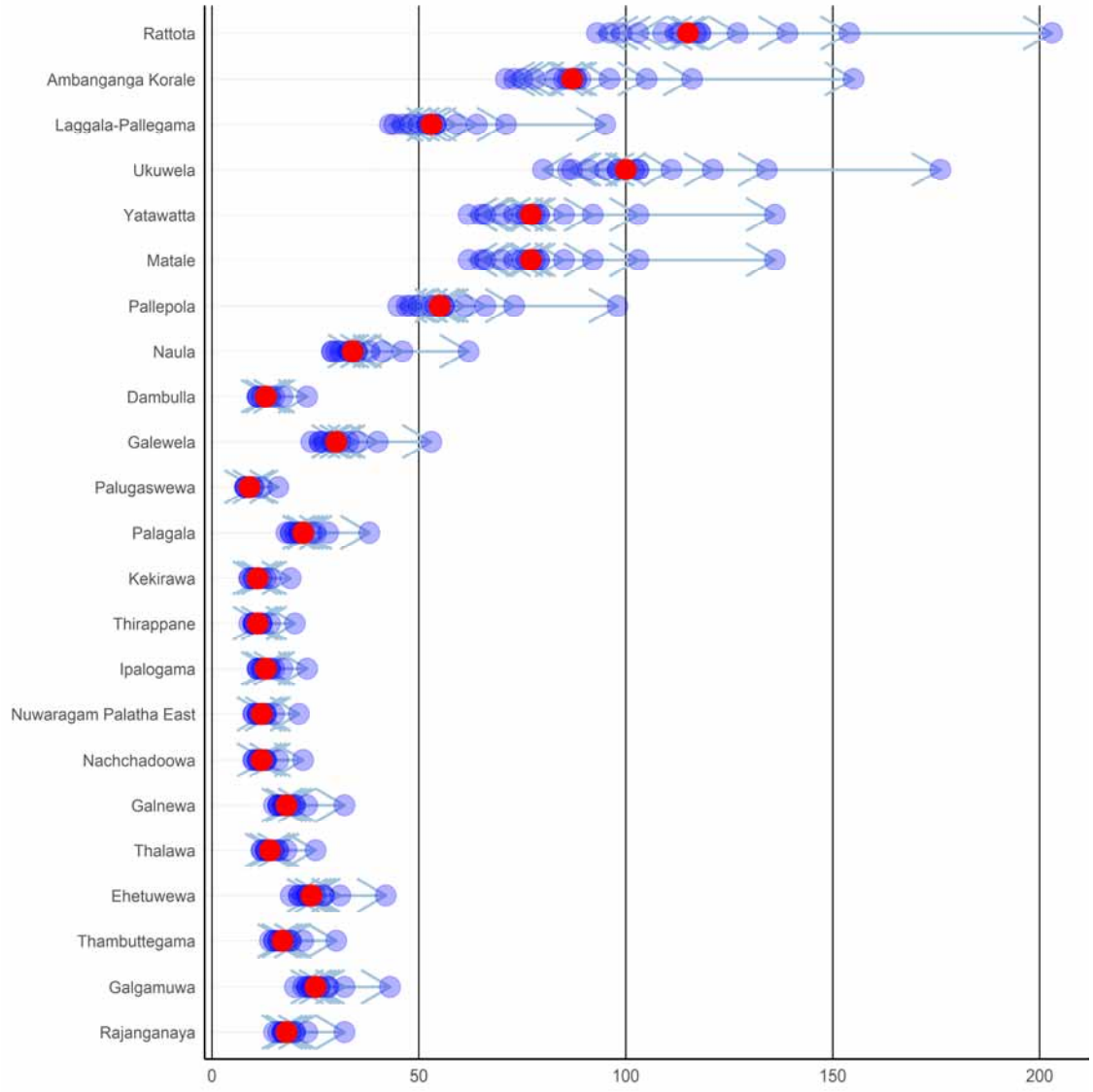


**Table 4.6.** Summary statistics of projected changes in June precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 18 | 19.07 | 15 | 17.0 | 18 | 18.7 | 32 | | |
| Galgamuwa | 25 | 26.36 | 20 | 24.0 | 25 | 26.0 | 43 | | |
| Thambuttegama | 17 | 18.00 | 14 | 16.3 | 17 | 17.7 | 30 | | |
| Ehetuwewa | 24 | 25.21 | 19 | 23.0 | 24 | 24.7 | 42 | | |
| Thalawa | 14 | 14.93 | 12 | 13.3 | 14 | 14.7 | 25 | | |
| Galnewa | 18 | 18.93 | 15 | 17.0 | 18 | 18.7 | 32 | | |
| Nachchadoowa | 12 | 12.71 | 10 | 11.3 | 12 | 12.7 | 22 | | |
| Nuwaragam Palatha East | 12 | 12.57 | 10 | 11.3 | 12 | 12.7 | 21 | | |
| Ipalogama | 13 | 13.71 | 11 | 12.3 | 13 | 13.7 | 23 | | |
| Thirappane | 11 | 11.64 | 9 | 10.3 | 11 | 11.7 | 20 | | |
| Kekirawa | 11 | 11.57 | 9 | 11.0 | 11 | 11.0 | 19 | YES | YES |
| Palagala | 22 | 22.93 | 18 | 21.0 | 22 | 22.0 | 38 | | YES |
| Palugaswewa | 9 | 9.57 | 8 | 9.0 | 9 | 9.0 | 16 | YES | YES |
| Galewela | 30 | 31.64 | 24 | 29.0 | 30 | 30.7 | 53 | | |
| Dambulla | 13 | 13.71 | 11 | 13.0 | 13 | 13.0 | 23 | YES | YES |
| Naula | 34 | 36.43 | 29 | 33.0 | 34 | 35.0 | 62 | | |
| Pallepola | 55 | 58.43 | 45 | 53.3 | 55.5 | 56.0 | 98 | | |
| Matale | 77 | 81.36 | 62 | 73.7 | 77 | 79.0 | 136 | | |
| Yatawatta | 77 | 81.36 | 62 | 73.7 | 77 | 79.0 | 136 | | |
| Ukuwela | 100 | 106.07 | 80 | 96.0 | 100 | 103.0 | 176 | | |
| Laggala-Pallegama | 53 | 56.14 | 43 | 50.7 | 53 | 54.0 | 95 | | |
| Ambanganga Korale | 87 | 92.00 | 71 | 83.7 | 87 | 88.7 | 155 | | |
| Rattota | 115 | 121.50 | 93 | 110.0 | 115 | 118.0 | 203 | | |

**Figure 4.7.** Projected changes in precipitation for July. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

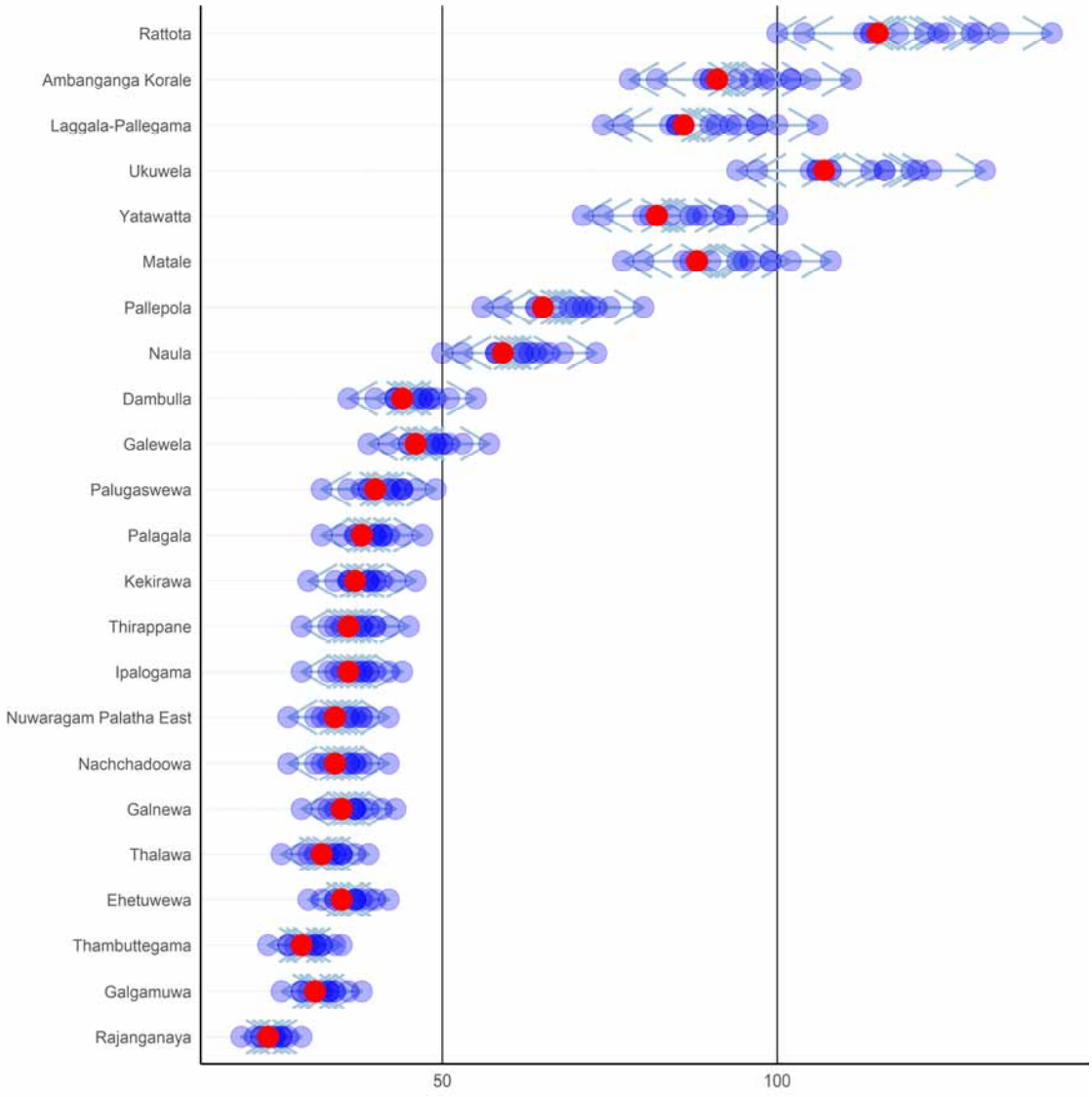


**Table 4.7.** Summary statistics of projected changes in July precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| **Rajanganaya** | 24 | 24.57 | 20 | 24.0 | 24.5 | 25.7 | 29 | YES | |
| **Galgamuwa** | 31 | 32.07 | 26 | 31.0 | 32.5 | 33.0 | 38 | YES | |
| **Thambuttegama** | 29 | 30.00 | 24 | 29.0 | 30.5 | 31.0 | 35 | YES | |
| **Ehetuwewa** | 35 | 36.21 | 30 | 35.0 | 37 | 37.0 | 42 | YES | |
| **Thalawa** | 32 | 33.00 | 26 | 32.0 | 33.5 | 34.7 | 39 | YES | |
| **Galnewa** | 35 | 36.21 | 29 | 35.0 | 37 | 37.0 | 43 | YES | |
| **Nachchadoowa** | 34 | 35.00 | 27 | 34.0 | 35 | 36.7 | 42 | YES | |
| **Nuwaragam Palatha East** | 34 | 35.07 | 27 | 34.0 | 35 | 36.7 | 42 | YES | |
| **Ipalogama** | 36 | 37.14 | 29 | 36.0 | 37.5 | 38.7 | 44 | YES | |
| **Thirappane** | 36 | 37.29 | 29 | 36.0 | 37.5 | 38.7 | 45 | YES | |
| **Kekirawa** | 37 | 38.29 | 30 | 36.3 | 39 | 39.7 | 46 | | |
| **Palagala** | 38 | 39.50 | 32 | 38.0 | 40 | 41.0 | 47 | YES | |
| **Palugaswewa** | 40 | 41.29 | 32 | 39.3 | 42 | 43.7 | 49 | | |
| **Galewela** | 46 | 47.86 | 39 | 46.0 | 48.5 | 49.7 | 57 | YES | |
| **Dambulla** | 44 | 45.71 | 36 | 43.3 | 46.5 | 47.7 | 55 | | |
| **Naula** | 59 | 61.36 | 50 | 58.3 | 62 | 63.7 | 73 | | |
| **Pallepola** | 65 | 67.86 | 56 | 65.0 | 68 | 70.7 | 80 | YES | |
| **Matale** | 88 | 92.07 | 77 | 88.0 | 92 | 95.7 | 108 | YES | |
| **Yatawatta** | 82 | 85.43 | 71 | 82.0 | 85.5 | 88.7 | 100 | YES | |
| **Ukuwela** | 107 | 111.79 | 94 | 106.7 | 111 | 116.0 | 131 | | |
| **Laggala-Pallegama** | 86 | 89.86 | 74 | 85.0 | 90.5 | 93.7 | 106 | | |
| **Ambanganga Korale** | 91 | 94.79 | 78 | 90.3 | 95 | 98.7 | 111 | | |
| **Rattota** | 115 | 120.14 | 100 | 114.3 | 120 | 124.7 | 141 | | |

**Figure 4.8.** Projected changes in precipitation for August. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

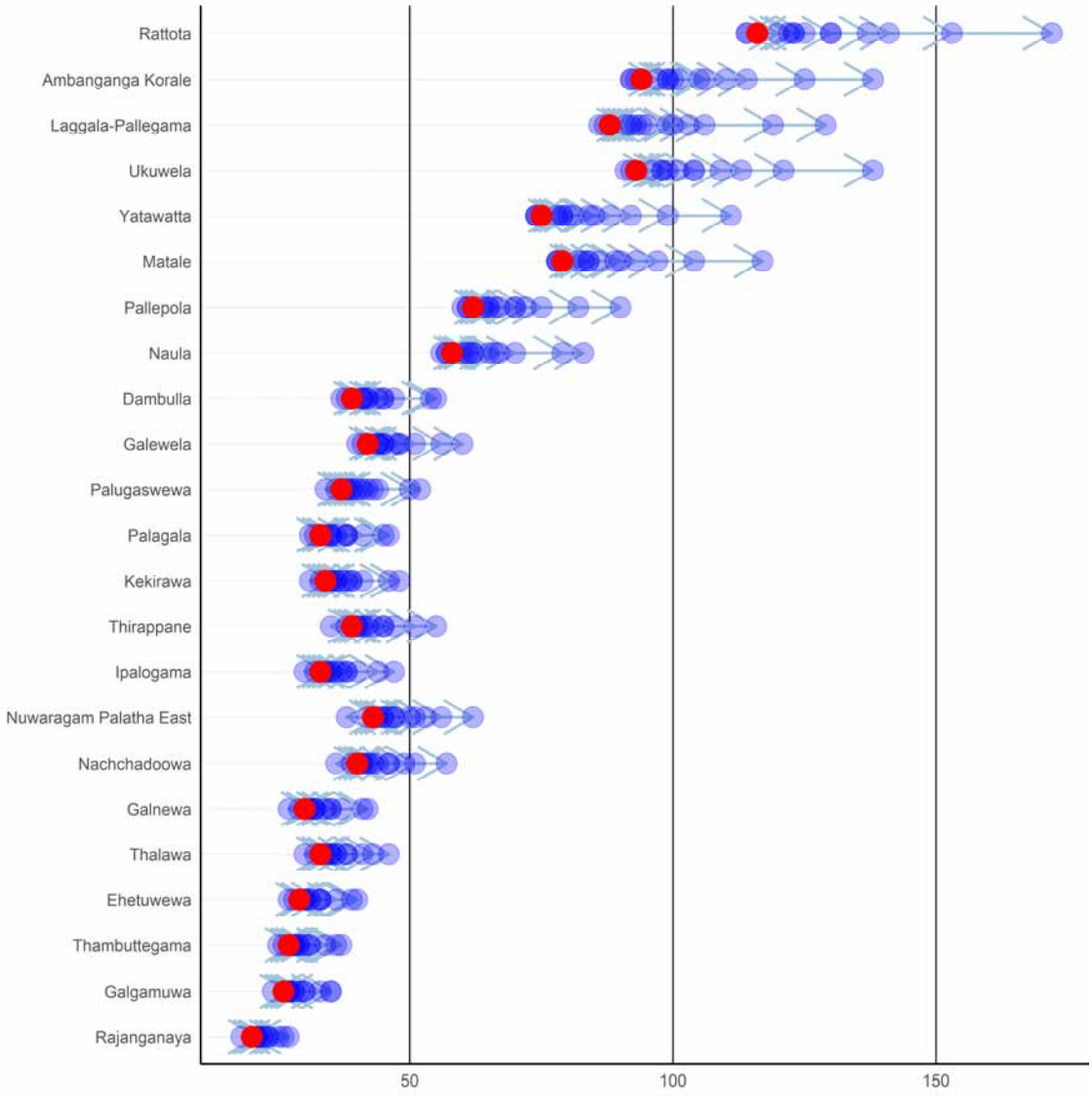


**Table 4.8.** Summary statistics of projected changes in August precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 20 | 22.07 | 18 | 21.0 | 21.5 | 22.7 | 27 | YES | |
| Galgamuwa | 26 | 28.93 | 24 | 27.0 | 28 | 29.7 | 35 | YES | |
| Thambuttegama | 27 | 29.93 | 25 | 28.0 | 29 | 30.7 | 37 | YES | |
| Ehetuwewa | 29 | 32.14 | 27 | 30.0 | 31 | 33.0 | 40 | YES | |
| Thalawa | 33 | 36.50 | 30 | 34.3 | 35.5 | 37.3 | 46 | YES | |
| Galnewa | 30 | 33.43 | 27 | 31.3 | 32 | 34.7 | 42 | YES | |
| Nachchadoowa | 40 | 44.07 | 36 | 41.3 | 42.5 | 45.3 | 57 | YES | |
| Nuwaragam Palatha East | 43 | 47.79 | 38 | 45.0 | 46.5 | 49.0 | 62 | YES | |
| Ipalogama | 33 | 36.64 | 30 | 34.3 | 35.5 | 37.7 | 47 | YES | |
| Thirappane | 39 | 43.00 | 35 | 40.3 | 41.5 | 44.3 | 55 | YES | |
| Kekirawa | 34 | 37.71 | 31 | 35.3 | 36.5 | 38.7 | 48 | YES | |
| Palagala | 33 | 36.93 | 31 | 35.0 | 35.5 | 38.0 | 46 | YES | |
| Palugaswewa | 37 | 40.93 | 34 | 38.3 | 39.5 | 41.7 | 52 | YES | |
| Galewela | 42 | 46.79 | 40 | 44.0 | 45 | 47.7 | 60 | YES | |
| Dambulla | 39 | 43.64 | 37 | 41.0 | 42 | 44.7 | 55 | YES | |
| Naula | 58 | 64.71 | 56 | 61.0 | 62 | 65.7 | 83 | YES | |
| Pallepola | 62 | 69.14 | 60 | 65.0 | 66.5 | 70.0 | 90 | YES | |
| Matale | 79 | 88.79 | 78 | 83.3 | 85 | 89.7 | 117 | YES | |
| Yatawatta | 75 | 84.14 | 74 | 79.0 | 80.5 | 84.7 | 111 | YES | |
| Ukuwela | 93 | 104.07 | 91 | 98.0 | 100 | 104.0 | 138 | YES | |
| Laggala-Pallegama | 88 | 98.71 | 86 | 92.3 | 94.5 | 99.7 | 129 | YES | |
| Ambanganga Korale | 94 | 105.07 | 92 | 99.0 | 100.5 | 105.7 | 138 | YES | |
| Rattota | 116 | 130.00 | 114 | 122.3 | 124 | 130.0 | 172 | YES | |

**Figure 4.9.** Projected changes in precipitation for September. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

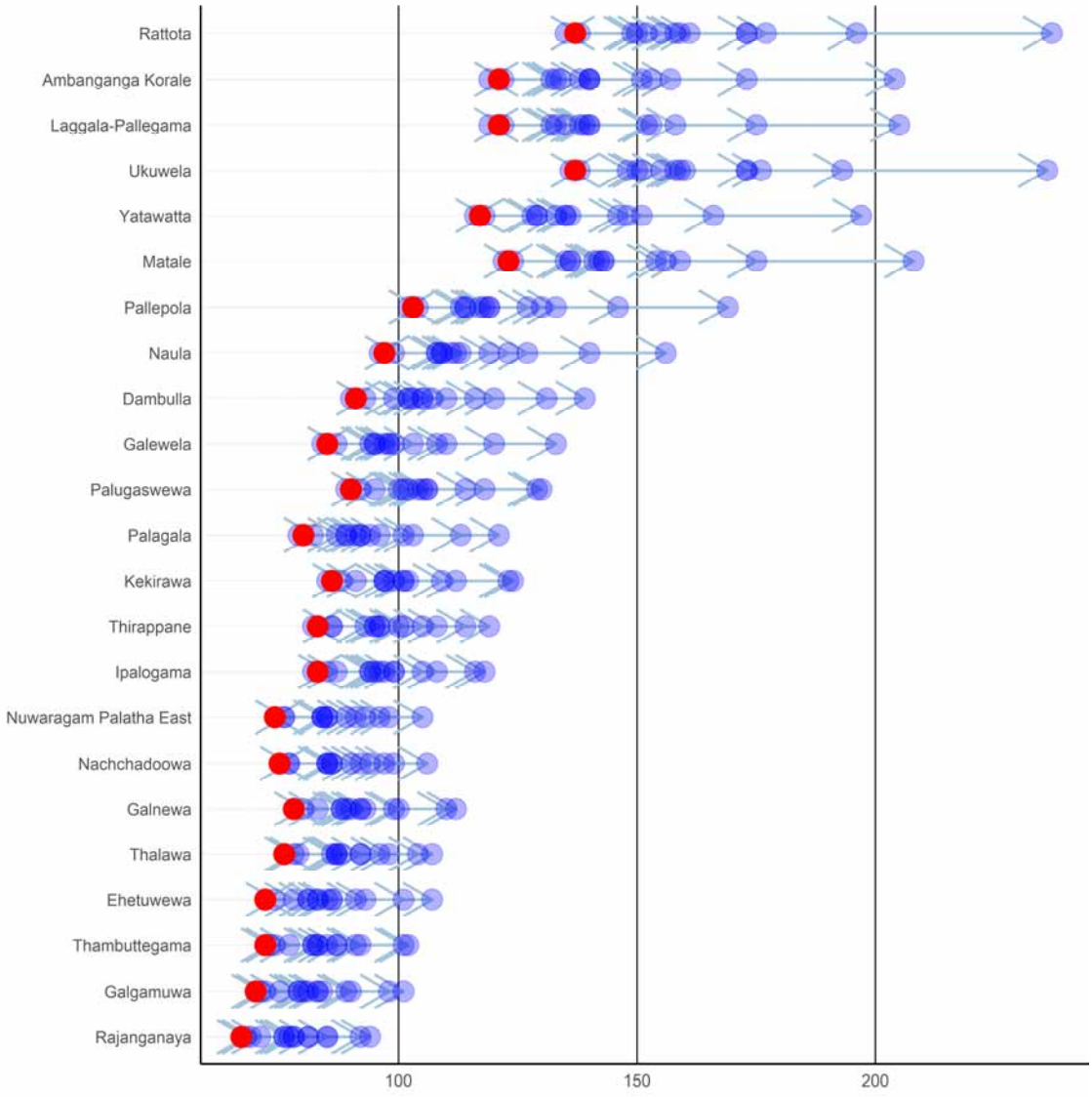


**Table 4.9.** Summary statistics of projected changes in September precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 67 | 79.36 | 68 | 76.3 | 78 | 81.0 | 94 | YES | |
| Galgamuwa | 70 | 83.21 | 71 | 79.3 | 82 | 83.7 | 101 | YES | |
| Thambuttegama | 72 | 85.64 | 73 | 82.3 | 84 | 87.0 | 102 | YES | |
| Ehetuwewa | 72 | 85.79 | 72 | 81.7 | 84 | 86.0 | 107 | YES | |
| Thalawa | 76 | 89.79 | 76 | 87.0 | 87.5 | 92.0 | 107 | YES | |
| Galnewa | 78 | 92.43 | 78 | 88.3 | 91 | 92.7 | 112 | YES | |
| Nachchadoowa | 75 | 88.14 | 75 | 85.0 | 86 | 91.3 | 106 | YES | |
| Nuwaragam Palatha East | 74 | 87.14 | 74 | 84.0 | 85 | 90.3 | 105 | YES | |
| Ipalogama | 83 | 98.21 | 82 | 94.3 | 96.5 | 99.0 | 118 | YES | |
| Thirappane | 83 | 98.29 | 82 | 95.0 | 96 | 100.7 | 119 | YES | |
| Kekirawa | 86 | 101.86 | 85 | 97.0 | 100 | 101.7 | 124 | YES | |
| Palagala | 80 | 94.93 | 79 | 89.7 | 92 | 95.3 | 121 | YES | |
| Palugaswewa | 90 | 106.50 | 89 | 101.3 | 104.5 | 106.0 | 130 | YES | |
| Galewela | 85 | 101.50 | 84 | 95.7 | 98 | 101.7 | 133 | YES | |
| Dambulla | 91 | 108.71 | 90 | 102.3 | 105 | 109.0 | 139 | YES | |
| Naula | 97 | 116.43 | 96 | 109.0 | 111.5 | 117.0 | 156 | YES | |
| Pallepola | 103 | 123.21 | 102 | 115.0 | 118.5 | 124.3 | 169 | YES | |
| Matale | 123 | 148.14 | 122 | 137.7 | 142.5 | 150.3 | 208 | YES | |
| Yatawatta | 117 | 140.50 | 116 | 130.3 | 135 | 142.7 | 197 | YES | |
| Ukuwela | 137 | 164.71 | 136 | 152.3 | 158.5 | 168.7 | 236 | YES | |
| Laggala-Pallegama | 121 | 145.79 | 119 | 136.0 | 139.5 | 148.0 | 205 | YES | |
| Ambanganga Korale | 121 | 145.43 | 119 | 135.3 | 140 | 147.3 | 204 | YES | |
| Rattota | 137 | 165.21 | 135 | 153.0 | 158.5 | 169.0 | 237 | YES | |

**Figure 4.10.** Projected changes in precipitation for October. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

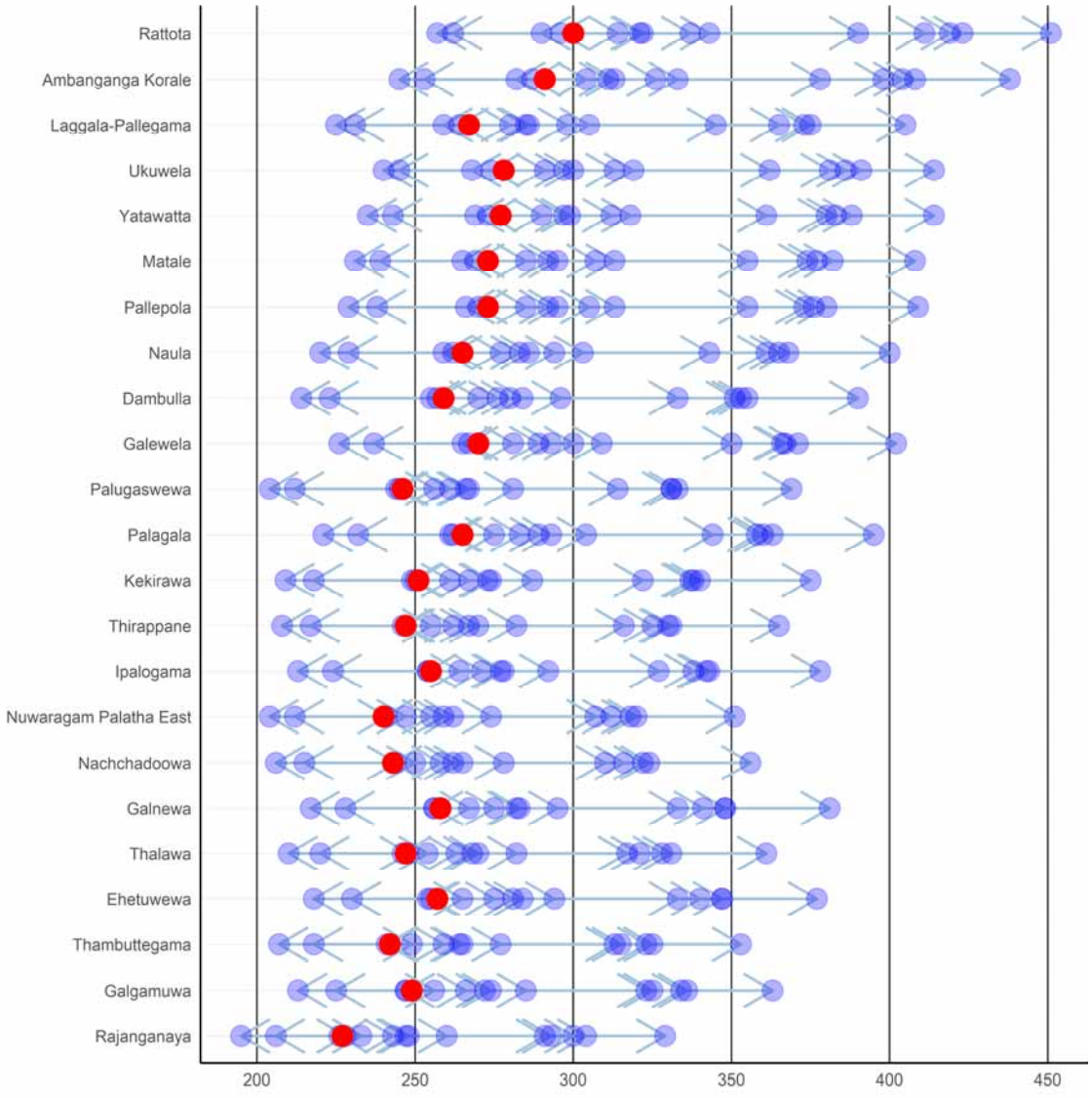


**Table 4.10.** Summary statistics of projected changes in October precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 227 | 257.36 | 195 | 236.3 | 247.5 | 280.7 | 329 | YES | |
| Galgamuwa | 249 | 283.29 | 213 | 259.3 | 273 | 310.3 | 363 | YES | |
| Thambuttegama | 242 | 275.07 | 207 | 252.3 | 264.5 | 301.0 | 353 | YES | |
| Ehetuwewa | 257 | 292.86 | 218 | 268.3 | 282.5 | 320.0 | 377 | YES | |
| Thalawa | 247 | 279.93 | 210 | 257.0 | 269 | 305.3 | 361 | YES | |
| Galnewa | 258 | 293.57 | 217 | 269.7 | 282.5 | 320.3 | 381 | YES | |
| Nachchadoowa | 243 | 274.93 | 206 | 252.7 | 263.5 | 299.3 | 356 | YES | |
| Nuwaragam Palatha East | 240 | 271.57 | 204 | 249.7 | 260.5 | 296.0 | 351 | YES | |
| Ipalogama | 255 | 289.64 | 213 | 266.3 | 277.5 | 315.3 | 378 | YES | |
| Thirappane | 247 | 280.07 | 208 | 257.3 | 268.5 | 304.7 | 365 | YES | |
| Kekirawa | 251 | 285.71 | 209 | 263.0 | 273.5 | 310.3 | 375 | YES | |
| Palagala | 265 | 302.86 | 221 | 277.7 | 291 | 330.7 | 395 | YES | |
| Palugaswewa | 246 | 279.57 | 204 | 257.7 | 266.5 | 303.0 | 369 | YES | |
| Galewela | 270 | 308.79 | 226 | 283.7 | 296.5 | 336.3 | 402 | YES | |
| Dambulla | 259 | 295.50 | 214 | 272.0 | 282 | 320.7 | 390 | YES | |
| Naula | 265 | 303.57 | 220 | 279.0 | 290 | 329.7 | 400 | YES | |
| Pallepola | 273 | 313.29 | 229 | 287.3 | 300 | 341.0 | 409 | YES | |
| Matale | 273 | 313.71 | 231 | 287.3 | 301 | 341.0 | 408 | YES | |
| Yatawatta | 277 | 318.71 | 235 | 292.3 | 305.5 | 346.7 | 414 | YES | |
| Ukuwela | 278 | 320.07 | 240 | 293.0 | 306.5 | 347.7 | 414 | YES | |
| Laggala-Pallegama | 267 | 306.86 | 225 | 281.7 | 292 | 331.7 | 405 | YES | |
| Ambanganga Korale | 291 | 334.29 | 245 | 306.3 | 319.5 | 363.0 | 438 | YES | |
| Rattota | 300 | 345.43 | 257 | 316.3 | 329.5 | 374.3 | 451 | YES | |

**Figure 4.11.** Projected changes in precipitation for November. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

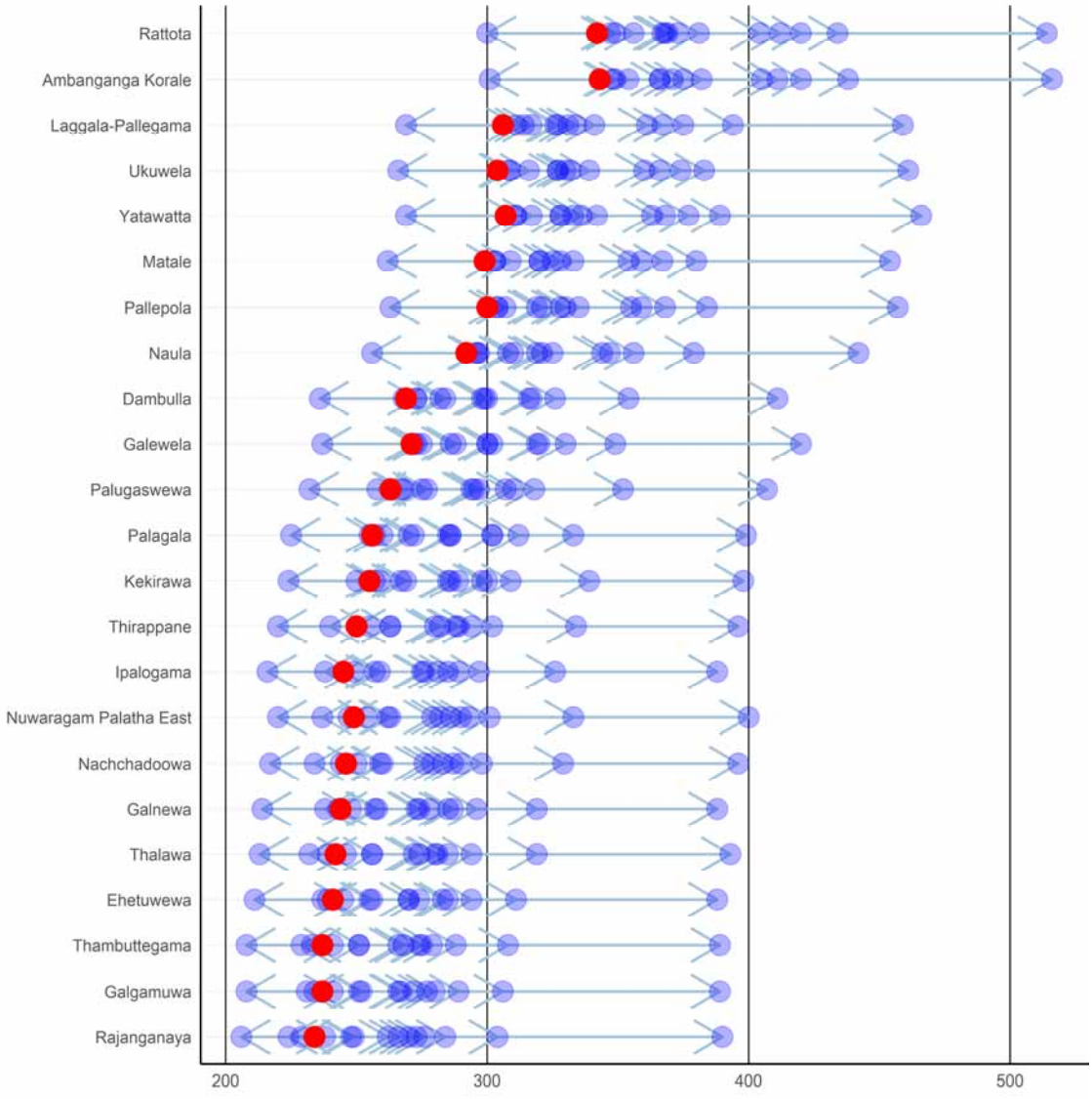


**Table 4.11.** Summary statistics of projected changes in November precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 234 | 265.64 | 206 | 248.3 | 264 | 272.0 | 390 | YES | |
| Galgamuwa | 237 | 268.79 | 208 | 251.3 | 266.5 | 275.3 | 389 | YES | |
| Thambuttegama | 237 | 268.57 | 208 | 251.0 | 267 | 274.7 | 389 | YES | |
| Ehetuwewa | 241 | 272.71 | 211 | 255.3 | 270 | 280.0 | 388 | YES | |
| Thalawa | 242 | 274.29 | 213 | 256.0 | 273 | 280.7 | 393 | YES | |
| Galnewa | 244 | 275.57 | 214 | 257.3 | 273.5 | 282.7 | 388 | YES | |
| Nachchadoowa | 246 | 278.71 | 217 | 259.3 | 277.5 | 285.7 | 396 | YES | |
| Nuwaragam Palatha East | 249 | 281.93 | 220 | 262.3 | 280.5 | 288.7 | 400 | YES | |
| Ipalogama | 245 | 277.21 | 216 | 257.7 | 275.5 | 283.7 | 388 | YES | |
| Thirappane | 250 | 282.57 | 220 | 263.0 | 281 | 288.7 | 396 | YES | |
| Kekirawa | 255 | 287.86 | 224 | 267.7 | 285.5 | 295.0 | 398 | YES | |
| Palagala | 256 | 288.86 | 225 | 270.7 | 285.5 | 296.7 | 399 | YES | |
| Palugaswewa | 263 | 296.93 | 232 | 275.7 | 294.5 | 303.7 | 407 | YES | |
| Galewela | 271 | 305.07 | 237 | 286.7 | 300 | 313.3 | 420 | YES | |
| Dambulla | 269 | 302.64 | 236 | 282.7 | 298.5 | 310.7 | 411 | YES | |
| Naula | 292 | 328.29 | 256 | 308.7 | 320 | 337.7 | 442 | YES | |
| Pallepola | 300 | 338.14 | 263 | 319.7 | 329 | 348.3 | 457 | YES | |
| Matale | 299 | 336.93 | 262 | 320.0 | 326.5 | 347.0 | 454 | YES | |
| Yatawatta | 307 | 345.57 | 269 | 328.0 | 334.5 | 356.0 | 466 | YES | |
| Ukuwela | 304 | 342.71 | 266 | 327.0 | 331 | 353.0 | 461 | YES | |
| Laggala-Pallegama | 306 | 344.71 | 269 | 326.3 | 332.5 | 354.3 | 459 | YES | |
| Ambanganga Korale | 343 | 385.86 | 301 | 366.0 | 373 | 397.3 | 516 | YES | |
| Rattota | 342 | 385.29 | 300 | 367.3 | 371 | 396.3 | 514 | YES | |

**Figure 4.12.** Projected changes in precipitation for December. Project locations are sorted by annual precipitation. Red circle indicates the baseline precipitation and blue circles precipitation projected for the 2050s.

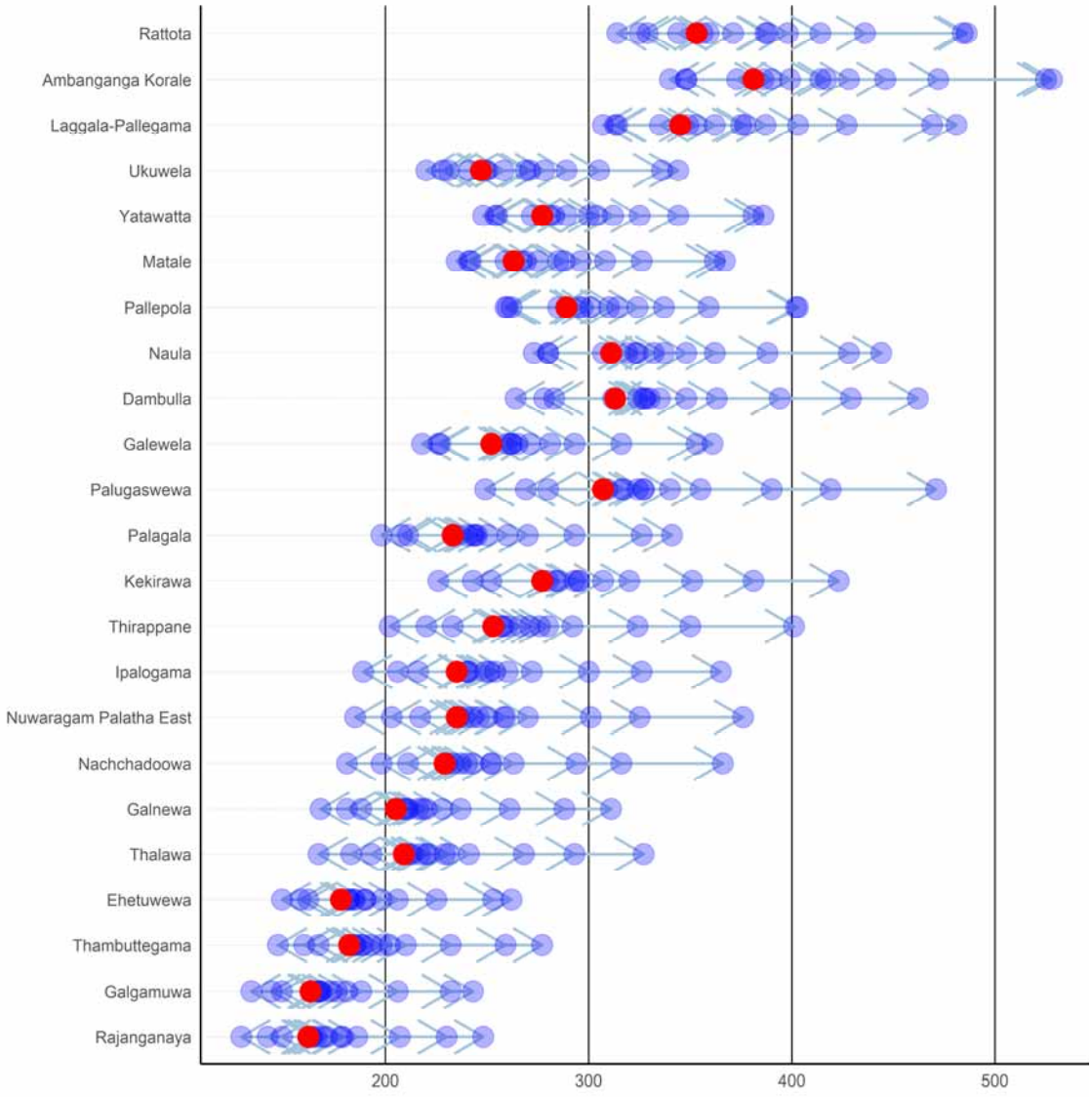


**Table 4.12.** Summary statistics of projected changes in December precipitation. LI = likely increase in precipitation. LD = likely decrease in precipitation. Divisions are sorted by mean annual precipitation.

| Division | Baseline | Future | | | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Min | 33% | 50% | 66% | Max | LI | LD |
| Rajanganaya | 162 | 177.21 | 129 | 164.7 | 170 | 178.7 | 248 | YES | |
| Galgamuwa | 163 | 178.21 | 134 | 167.3 | 170.5 | 179.3 | 243 | YES | |
| Thambuttegama | 182 | 199.43 | 147 | 186.0 | 191 | 200.7 | 277 | YES | |
| Ambanpola | 144 | 157.43 | 124 | 147.0 | 151.5 | 159.0 | 209 | YES | |
| Ehetuwewa | 178 | 194.71 | 149 | 182.7 | 187.5 | 195.3 | 262 | YES | |
| Thalawa | 209 | 229.57 | 167 | 214.3 | 220.5 | 230.3 | 327 | YES | |
| Galnewa | 205 | 224.71 | 168 | 210.3 | 217 | 225.3 | 311 | YES | |
| Nachchadoowa | 229 | 251.14 | 181 | 234.3 | 241.5 | 252.0 | 366 | YES | |
| Nuwaragam Palatha East | 235 | 257.71 | 185 | 240.3 | 248 | 258.7 | 376 | YES | |
| Ipalogama | 235 | 257.79 | 189 | 240.3 | 250 | 258.0 | 365 | YES | |
| Thirappane | 253 | 277.86 | 202 | 258.7 | 268.5 | 278.7 | 401 | YES | |
| Kekirawa | 277 | 302.50 | 226 | 284.3 | 294 | 303.0 | 423 | YES | |
| Palagala | 233 | 254.50 | 198 | 241.0 | 244.5 | 256.7 | 341 | YES | |
| Palugaswewa | 307 | 335.21 | 249 | 316.3 | 325.5 | 335.7 | 471 | YES | |
| Galewela | 252 | 274.79 | 218 | 260.7 | 263.5 | 277.7 | 361 | YES | |
| Dambulla | 313 | 341.21 | 264 | 325.0 | 329 | 343.7 | 462 | YES | |
| Naula | 311 | 338.93 | 273 | 320.3 | 328 | 344.3 | 444 | YES | |
| Pallepola | 289 | 314.86 | 259 | 295.7 | 305.5 | 320.7 | 403 | YES | |
| Matale | 263 | 287.14 | 235 | 267.7 | 280 | 293.3 | 367 | YES | |
| Yatawatta | 277 | 302.43 | 248 | 281.7 | 294.5 | 309.3 | 386 | YES | |
| Ukuwela | 247 | 269.21 | 220 | 249.3 | 263.5 | 275.7 | 344 | YES | |
| Laggala-Pallegama | 345 | 375.14 | 307 | 350.3 | 368.5 | 383.7 | 481 | YES | |
| Ambanganga Korale | 381 | 415.29 | 340 | 387.3 | 406.5 | 424.3 | 528 | YES | |
| Rattota | 353 | 385.07 | 314 | 357.0 | 379 | 394.7 | 486 | YES | |

# 5. Methods

A national level climate analysis was conducted with mid-21st century (bio)climatic raster layers obtained from WorldClim 1.4 (downloaded June 2018; Hijmans *et al.* 2005). Baseline climates (centred on 1975, mainly covering 1960-1990) were also obtained from WorldClim 1.4. Future data were centred on 2050 (averages for 2041-2060) and corresponded to the most recent General Ciculation Model (GCM) climate projections that were used in the Fifth Assessment IPCC report. The resolution of grid layers was 2.5 minutes, a compromise between the highest resolution of 0.5 minutes and data processing time, but also reflecting potential pitfalls in statistical downscaling where densities of weather station data are scarce. All future GCM data sets were selected were selected for three[4] Representative Concentration Pathways (RCPs 2.6 [15 GCMs], 4.5 [19 GCMs] and 8.5 [17 GCMs]). RCPs were introduced in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (AR5, including RCP 2.6 W $m^{-2}$, RCP 4.5 W $m^{-2}$, RCP 6.0 W $m^{-2}$ and RCP 8.5 W $m^{-2}$; Table 1.1). WorldClim was selected as a frequently-used[5] open-access and high resolution downscaled climate data set. During the preparation of this report, the possibility of using Regional Climate Model data was explored but discarded as the resolution of available RCM data did not reflect the baseline climatology of Sri Lanka well (Shiromani Jayawardena, pers. comm.[6])

Representative Concentration Pathways (RCPs) use more realistic greenhouse gas concentration inputs for running climate models than those provided by previous scenario sets (Moss *et al.* 2010, Jubb *et al.* 2013). The four RCPs (RCP 2.6, RCP 4.5, RCP 6.0 and RCP 8.5) are named after a possible range of radiative forcing values in the year 2100 relative to pre-industrial values (+2.6, +4.5, +6.0, and +8.5 W $m^{-2}$, respectively). Radiative forcing is the extra heat that the lower atmosphere will retain because of additional greenhouse gases (Jubb *et al.* 2013). The full range of emissions scenarios is included within the range of the RCPs, including one mitigation scenario leading to a very low forcing level (RCP 2.6), two medium stabilization scenarios (RCP 4.5 and RCP 6.0) and one very high baseline emission scenario (RCP8.5). The RCP 8.5 pathway arises from little effort to reduce emissions and represents a failure to curb warming by 2100. RCP 2.6 sees emissions peak early, then fall due to active removal of atmospheric carbon dioxide; this scenario had no counterpart scenario in the fourth assessment report of the IPCC (Jubb *et al.* 2013).

[4] Data for RCP 6.0 were not analysed as data was only available for 12 GCMs, but especially as emissions for the middle of the 21st century are very similar to RCP 4.5 (Figure 10 in van Vuuren *et al.* 2011)

[5] Version 1 has been cited close to 13,000 times. Version 2.0 became available in 2017 but does not yet provide statistically-downscaled future data sets. Once available, this new version will be used for climate and suitability modelling, especially as this new version includes data on solar radiation, wind speed and water vapor pressure used for the calculation of potential evapotranspiration (see also Title and Bemmels 2017)

[6] Dr. Shiromani Jayawardena is Deputy Director (Research and Climate Change) of the Sri Lankan Department of Meteorology. An in-depth discussion of climate change projections for Sri Lanka using recently-published data sets was held with dr. Jayawardena during the preparation of this report.

**Table 5.1.** Mid-21st century GCM datasets obtained from WorldClim 1.4 and analysed in this report, including direct access hyperlinks used for downloading them (June 2018).

| GCM | Code | RCP 2.6 | RCP 4.5 | RCP 8.5 |
|---|---|---|---|---|
| **ACCESS1-0** | AC | | pr, bi | pr, bi |
| **BCC-CSM1-1** | BC | pr, bi | pr, bi | pr, bi |
| **CCSM4** | CC | pr, bi | pr, bi | pr, bi |
| **CESM1-CAM5-1-FV2** | CE | | pr, bi | |
| **CNRM-CM5** | CN | pr, bi | pr, bi | pr, bi |
| **GFDL-CM3** | GF | pr, bi | pr, bi | pr, bi |
| **GFDL-ESM2G** | GD | pr, bi | pr, bi | |
| **GISS-E2-R** | GS | pr, bi | pr, bi | pr, bi |
| **HadGEM2-AO** | HD | pr, bi | pr, bi | pr, bi |
| **HadGEM2-CC** | HG | | pr, bi | pr, bi |
| **HadGEM2-ES** | HE | pr, bi | pr, bi | pr, bi |
| **INMCM4** | IN | | pr, bi | pr, bi |
| **IPSL-CM5A-LR** | IP | pr, bi | pr, bi | pr, bi |
| **MIROC-ESM-CHEM** | MI | pr, bi | pr, bi | pr, bi |
| **MIROC-ESM** | MR | pr, bi | pr, bi | pr, bi |
| **MIROC5** | MC | pr, bi | pr, bi | pr, bi |
| **MPI-ESM-LR** | MP | pr, bi | pr, bi | pr, bi |
| **MRI-CGCM3** | MG | pr, bi | pr, bi | pr, bi |
| **NorESM1-M** | NO | pr, bi | pr, bi | pr, bi |

Whereas climate change analysis in this report concentrated on monthly precipitation, an accompanying report concentrated on bioclimatic variables – variables that are typically used by species distribution models to characterize the environmental niche of a species and predict habitat distribution in future climatic conditions (for example, Booth *et al.* 2014, De Sousa *et al.* 2017, Gaisberger *et al.* 2017, Kindt 2018). Besides their application in species suitability modelling (see also their use in vegetation modelling as in Dallmeyer *et al.* 2018 or Hengl *et al.* 2018), bioclimatic variables also summarize trends and variation in monthly precipitation, minimum and maximum temperatures, which was another reason that these data sets were selected.

A more detailed climate change analysis was done for a subset of point locations representative of the variation of baseline climate across the project area. Point locations were identified as the centroids of polygons corresponding to division boundaries (GADM version 3.6 2018; *geosphere::centroid* from geosphere 1.5-7, Hijmans 2017). All analyses, data preparation, graphs and maps were made in the R statistical environment (R version 3.4.3 released on 2017-11-30), except for Figures 5.1 to 5.4 that were prepared in QGIS (version 2.18.3 with *OpenLayers* plugin and *Open Street Map* baseline).

Throughout the analyses, the likelihood scale recommended for the fifth Assessment Report of the IPCC (Mastrandea *et al.* 2011) was adopted. Thresholds of 33% (ranges of 0-33% are interpreted as **unlikely**) and 66% (ranges of 66-100% are interpreted as **likely**) were obtained with the *stats::quantile* function for location-specific data sets extracted from (bio)climatic raster layers. For counts of climate models, thresholds were calculated with the *base::floor* and *base::ceiling* functions for the total number of GCMs multiplied by 1/3 and 2/3 respectively.

**Figure 5.1.** Selection of point loctions representative of the project area.

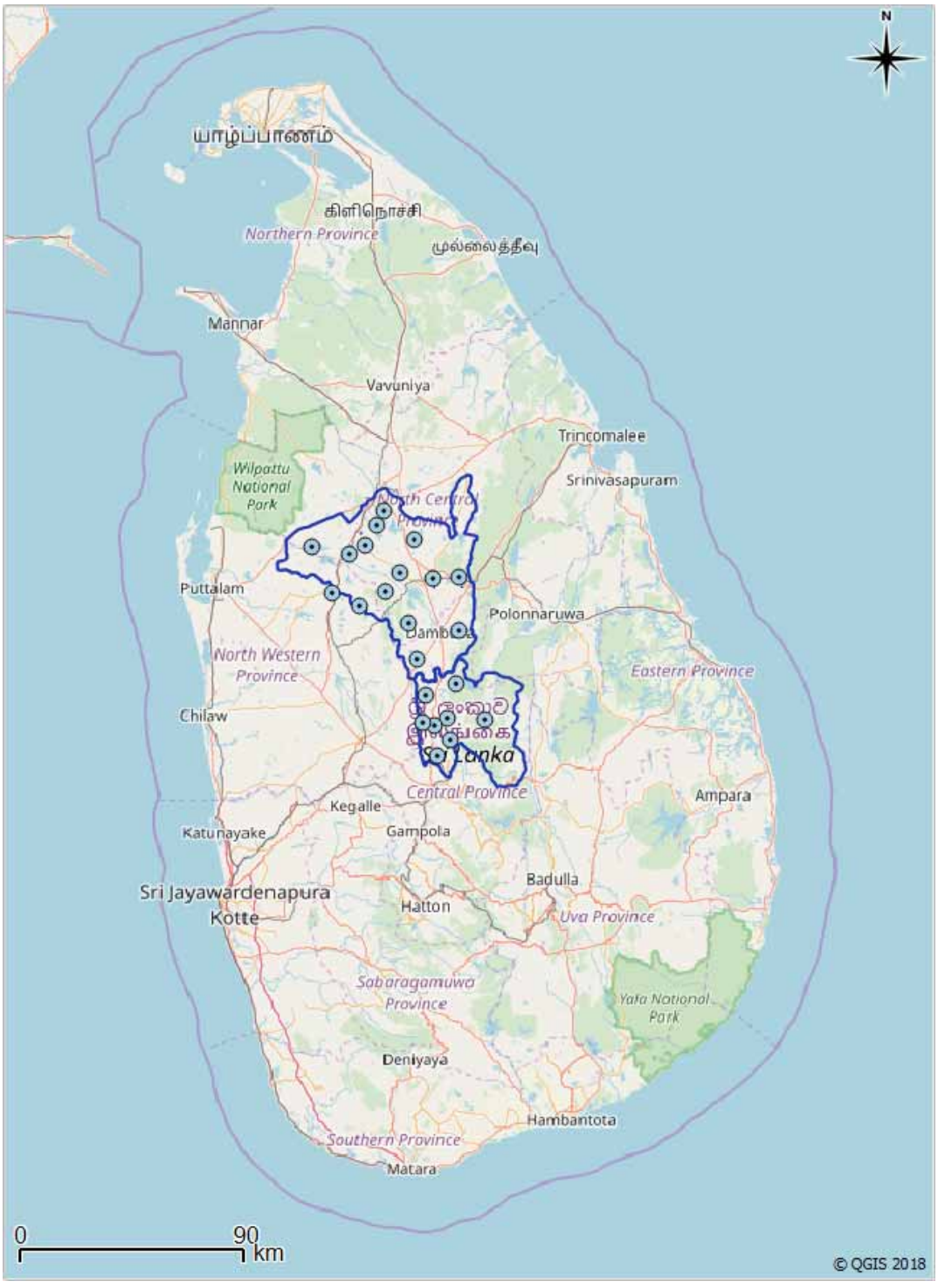


**Figure 5.2.** Selection of point locations representative of the project area. The unlabeled upland location north-east from Matale corresponds to Ambanganga Korale.

**Figure 5.3.** Selection of point loctions representative of the project area. Colours correspond to districts, dotted lines to divisions. The unlabeled upland location north-east from Matale corresponds to Ambanganga Korale.

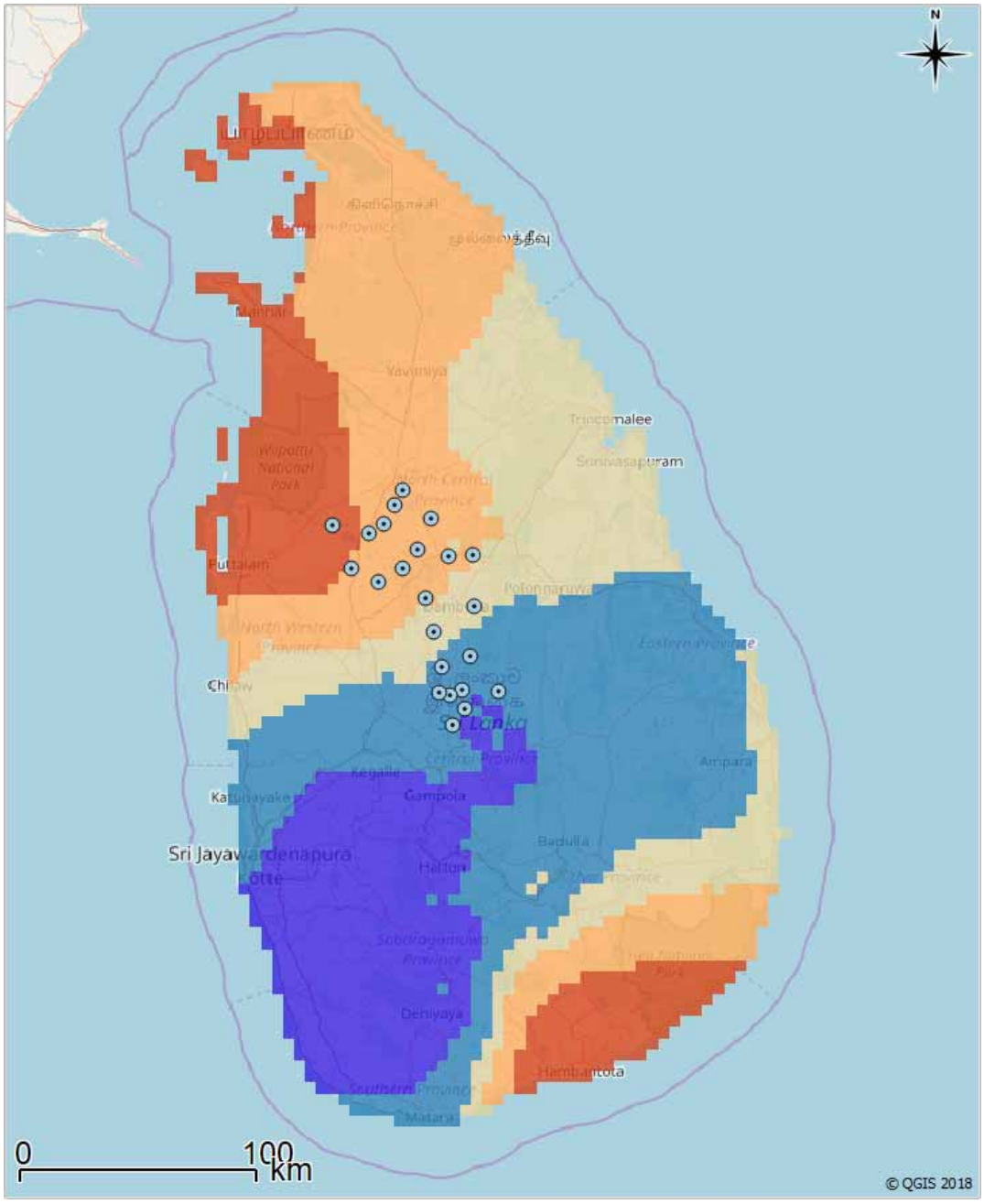
**Table 5.2.** Locations and characteristics of point locations used for project-level climate change analysis. Divisions are sorted by BIO12, the annual precipitation, a variable used in Sri Lanka to differentiate between dry (< 1750 mm), intermediate (1750-2500 mm) and wet (> 2500 mm) zones[7].

| Division | District | Latitude | Longitude | BIO12 | Climate |
|---|---|---|---|---|---|
| **Rajanganaya** | Anuradhapura | 8.1797 | 80.1858 | 1184 | dry |
| **Galgamuwa** | Kurunegala | 8.0156 | 80.2586 | 1263 | dry |
| **Thambuttegama** | Anuradhapura | 8.1502 | 80.3218 | 1267 | dry |
| **Ehetuwewa** | Kurunegala | 7.9655 | 80.3592 | 1318 | dry |
| **Thalawa** | Anuradhapura | 8.1840 | 80.3791 | 1332 | dry |
| **Galnewa** | Anuradhapura | 8.0182 | 80.4519 | 1358 | dry |
| **Nachchadoowa** | Anuradhapura | 8.2548 | 80.4192 | 1365 | dry |
| **Nuwaragam Palatha East** | Anuradhapura | 8.3088 | 80.4494 | 1377 | dry |
| **Ipalogama** | Anuradhapura | 8.0868 | 80.5070 | 1389 | dry |
| **Thirappane** | Anuradhapura | 8.2058 | 80.5562 | 1406 | dry |
| **Kekirawa** | Anuradhapura | 8.0630 | 80.6266 | 1458 | dry |
| **Palagala** | Anuradhapura | 7.9053 | 80.5378 | 1465 | dry |
| **Palugaswewa** | Anuradhapura | 8.0685 | 80.7160 | 1511 | dry |
| **Galewela** | Matale | 7.7779 | 80.5694 | 1590 | dry |
| **Dambulla** | Matale | 7.8764 | 80.7200 | 1616 | dry |
| **Naula** | Matale | 7.6888 | 80.7075 | 1802 | intermediate |
| **Pallepola** | Matale | 7.6461 | 80.5985 | 1833 | intermediate |
| **Matale** | Matale | 7.5385 | 80.6286 | 1874 | intermediate |
| **Yatawatta** | Matale | 7.5493 | 80.5878 | 1910 | intermediate |
| **Ukuwela** | Matale | 7.4289 | 80.6407 | 1947 | intermediate |
| **Laggala-Pallegama** | Matale | 7.5571 | 80.8122 | 2064 | intermediate |
| **Ambanganga Korale** | Matale | 7.5614 | 80.6774 | 2339 | intermediate |
| **Rattota** | Matale | 7.4881 | 80.6861 | 2397 | intermediate |

The eight locations in the upland catchments (Naula, Pallepola, Matale, Yatawatta, Ukuwela, Laggala-Pallegama, Ambanganga Korale and Rattota) all have an intermediate climate with annual precipitation between 1750 and 2500 mm. The locations in the lowland areas are all in the dry climatic zone of Sri Lanka (Table 2.1, Figure 5.5).

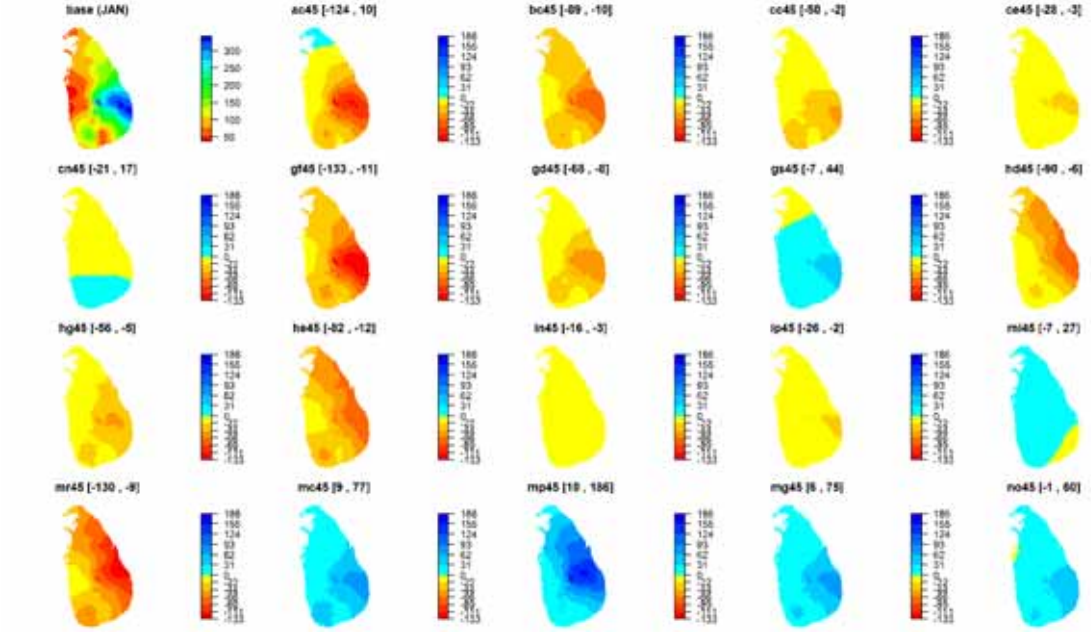
[7] Punyawardena R, Dissanaike T and Mallawatantri. 2013. Spatial variation of climate change induced vulnerability in Sri Lanka. An analysis of the components of vulnerability at district level. Peradeniya: Department of Agriculture. ISBN 978-955-674-139-

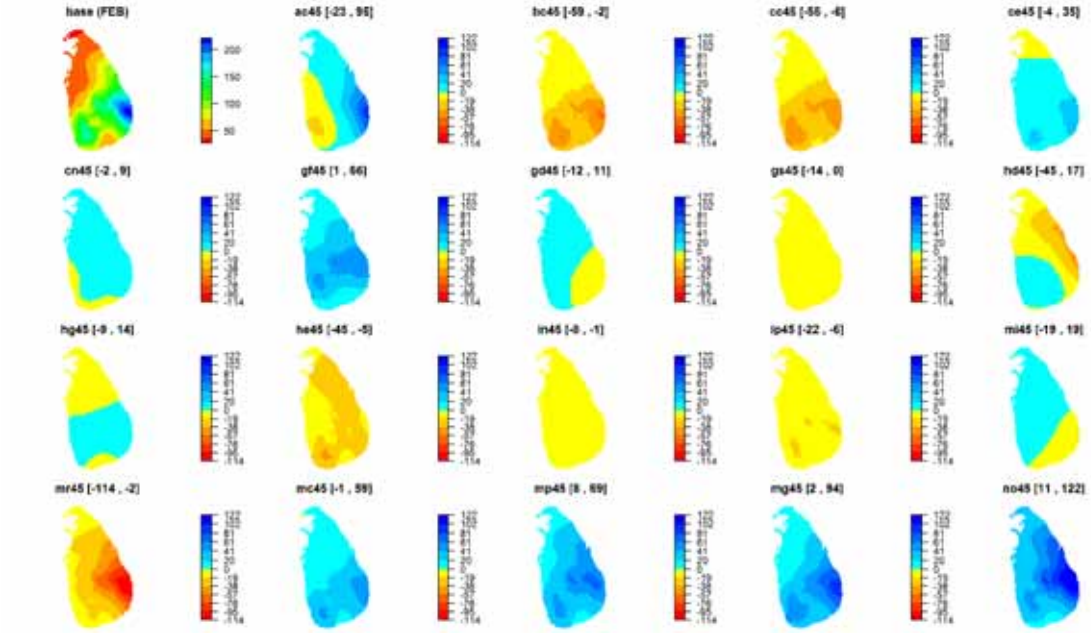
**Figure 5.4.** Map of baseline annual precipitation (BIO12) of Sri Lanka with selected project locations. Colourscheme corresponds to the climatic zones of Sri Lanka where the dry zone was split in three zones (1000 – 1250 mm, 1250 – 1500 mm and 1500 – 1750 mm), the intermediate zone is shown in light blue (1750 – 2500 mm) and the wet zone is shown in dark blue (> 2500 mm).

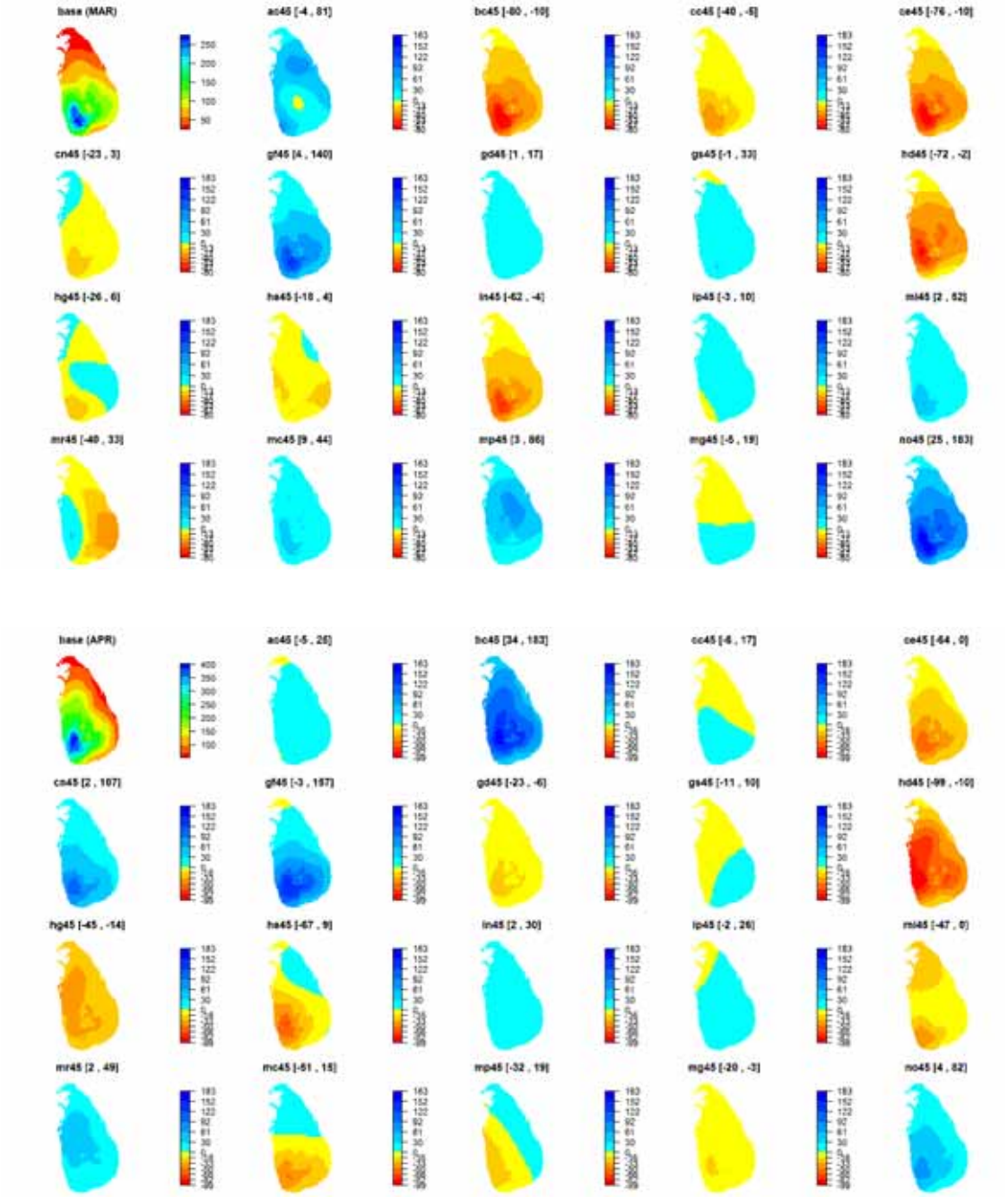


## 6. Annex I. Projected monthly changes in precipitation.

Figures in this annex show the baseline monthly precipitation in the top-left corner. Other graphs correspond to projected mid-21st century changes (future - baseline). Model abbreviations as in Section X, with suffix corresponding to the CRP.

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gd45 [1 , 17]
gs45 [-1 , 33]
hd45 [-72 , -2]
hg45 [-26 , 6]
ha45 [-18 , 4]
in45 [-62 , -4]
ip45 [-3 , 10]
mi45 [2 , 52]
mr45 [-40 , 33]
mc45 [9 , 44]
mp45 [3 , 86]
mg45 [-5 , 19]
no45 [25 , 183]
base (APR)
ao45 [-5 , 26]
bc45 [34 , 183]
cc45 [-6 , 17]
ce45 [-64 , 0]
cn45 [2 , 107]
gf45 [-3 , 187]
gd45 [-23 , -6]
gs45 [-11 , 10]
hd45 [-99 , -10]
hg45 [-45 , -14]
ha45 [-67 , 9]
in45 [2 , 30]
ip45 [-2 , 26]
mi45 [-47 , 0]
mr45 [2 , 49]
mc45 [-61 , 15]
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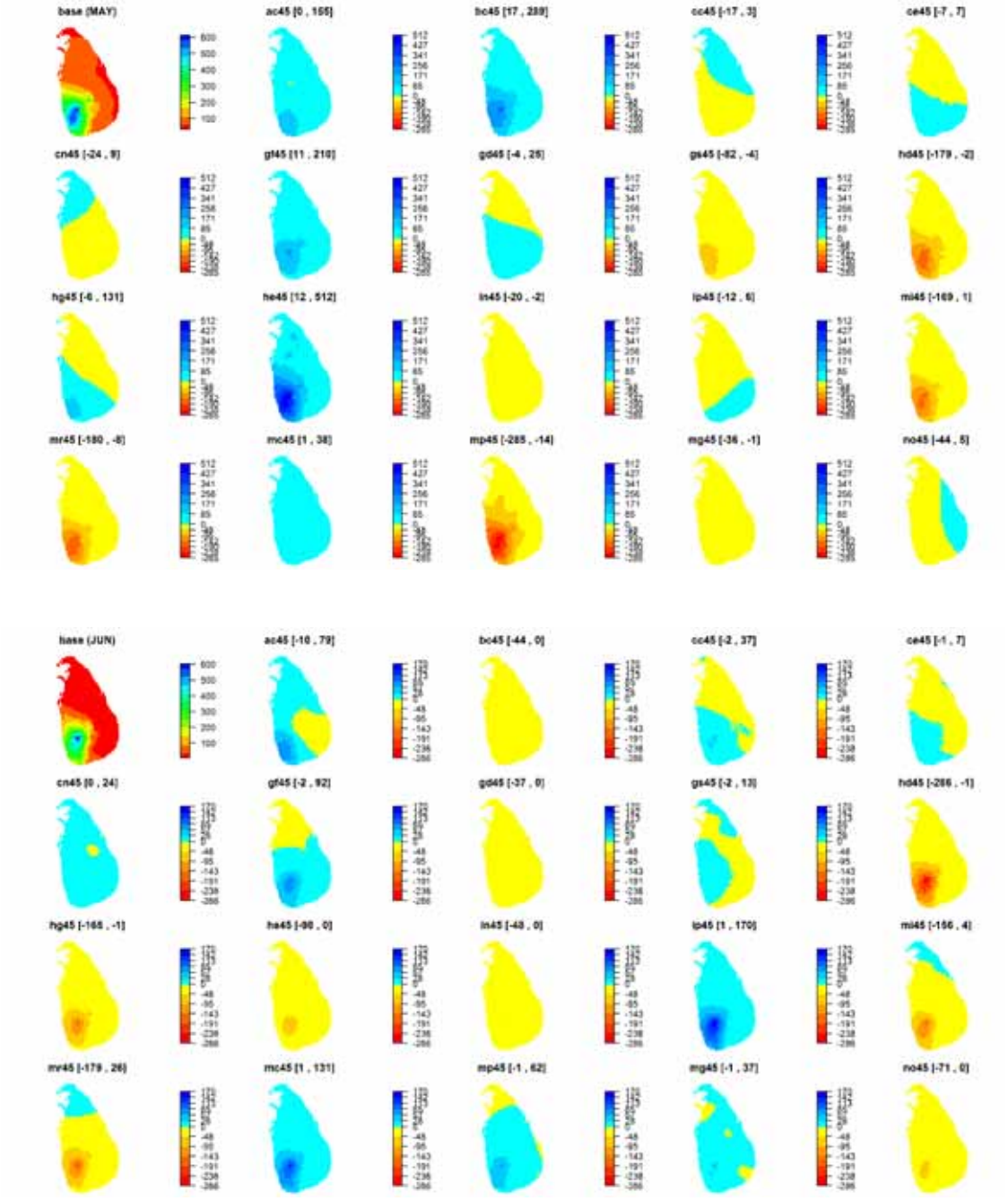
mg45 [-20 , -3]
no45 [4 , 82]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bc45 [17 , 289]
cc45 [-17 , 3]
ce45 [-7 , 7]
cn45 [-24 , 9]
gf45 [11 , 210]
gd45 [-4 , 25]
gs45 [-82 , -4]
hd45 [-179 , -2]
hg45 [-6 , 131]
he45 [12 , 512]
in45 [-20 , -2]
ip45 [-12 , 6]
mi45 [-169 , 1]
mr45 [-180 , -8]
mc45 [1 , 38]
mp45 [-285 , -14]
mg45 [-36 , -1]
no45 [-44 , 8]
base (JUN)
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bc45 [-44 , 0]
cc45 [-2 , 37]
ce45 [-1 , 7]
cn45 [0 , 24]
gf45 [-2 , 92]
gd45 [-37 , 0]
gs45 [-2 , 13]
hd45 [-286 , -1]
hg45 [-165 , -1]
he45 [-90 , 0]
in45 [-43 , 0]
ip45 [1 , 170]
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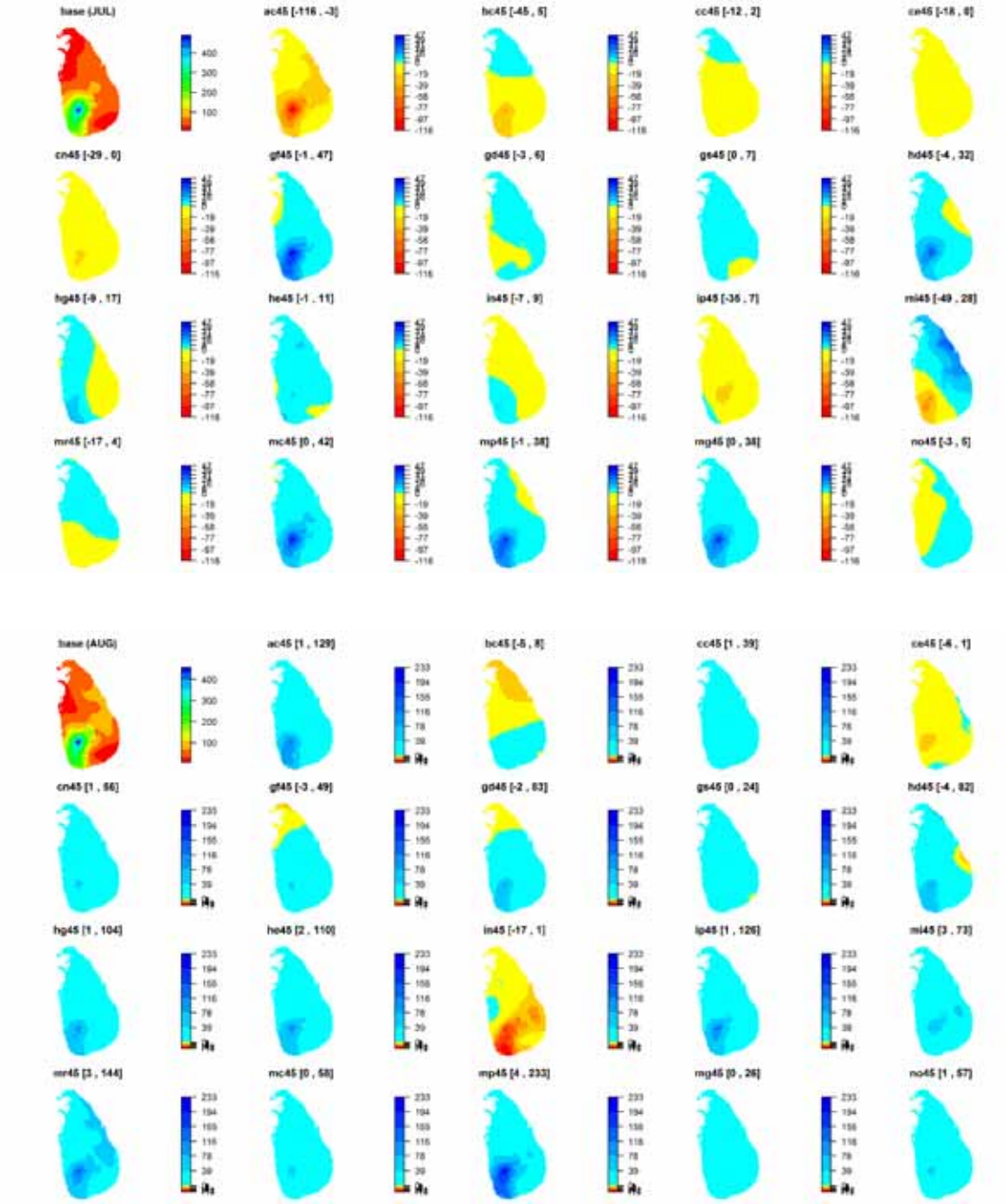
mc45 [1 , 131]
mp45 [-1 , 62]
mg45 [-1 , 37]
no45 [-71 , 0]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bc45 [-45 , 6]
cc45 [-12 , 2]
ce45 [-18 , 8]
cn45 [-29 , 0]
gf45 [-1 , 47]
gd45 [-3 , 6]
gs45 [0 , 7]
hd45 [-4 , 32]
hg45 [-9 , 17]
he45 [-1 , 11]
in45 [-7 , 9]
ip45 [-35 , 7]
mi45 [-49 , 28]
mr45 [-17 , 4]
mc45 [0 , 42]
mp45 [-1 , 38]
mg45 [0 , 38]
no45 [-3 , 6]
base (AUG)
ac45 [1 , 129]
bc45 [-5 , 8]
cc45 [1 , 39]
ce45 [-6 , 1]
cn45 [1 , 56]
gf45 [-3 , 49]
gd45 [-2 , 63]
gs45 [0 , 24]
hd45 [-4 , 82]
hg45 [1 , 104]
he45 [2 , 110]
in45 [-17 , 1]
ip45 [1 , 126]
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mr45 [3 , 144]
mc45 [0 , 58]
mp45 [4 , 233]
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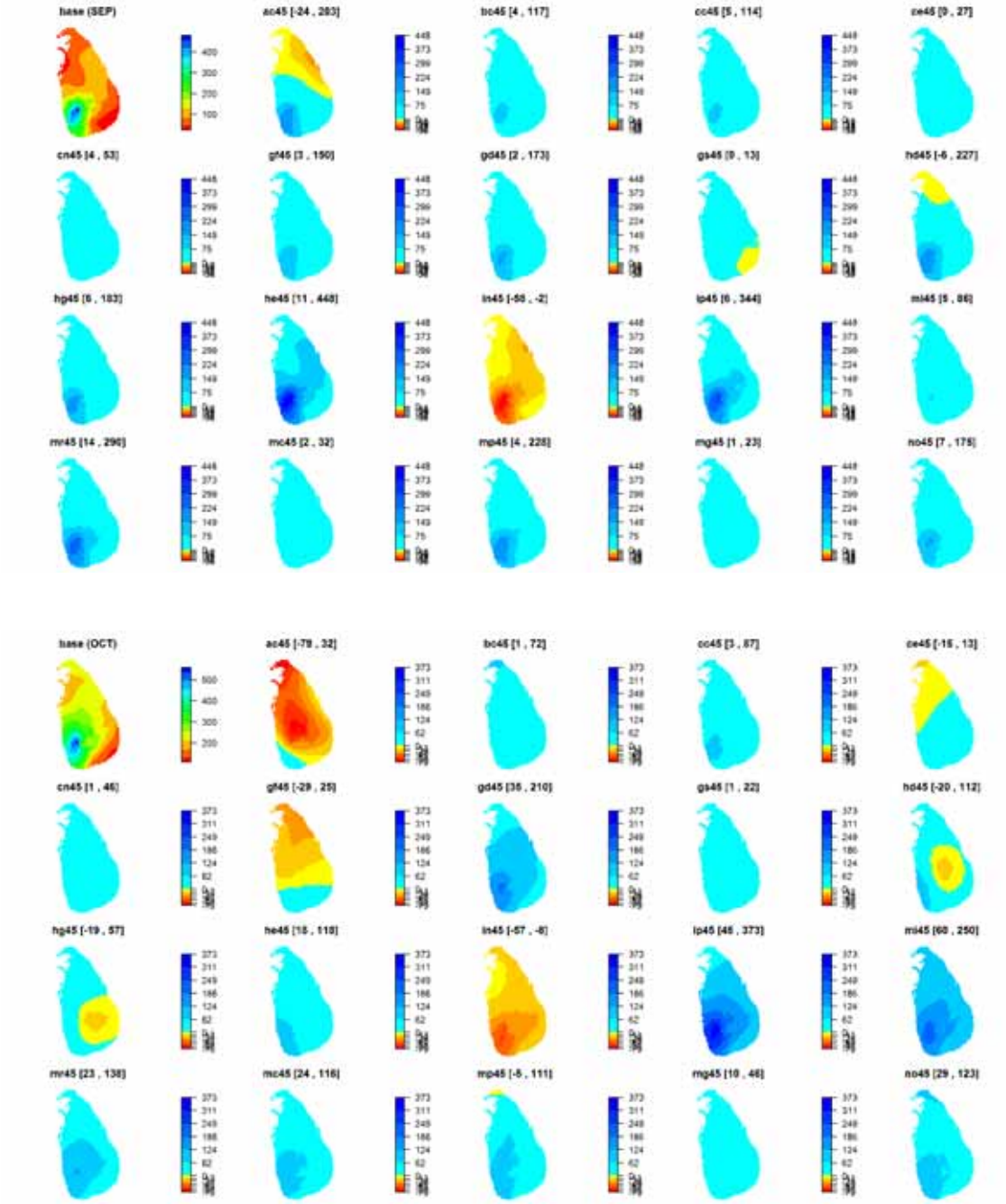
no45 [1 , 57]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gd45 [2 , 173]
gs45 [9 , 13]
hd45 [-6 , 227]
hp45 [6 , 183]
he45 [11 , 448]
in45 [-58 , -2]
ip45 [6 , 344]
mi45 [5 , 86]
mr45 [14 , 290]
mc45 [2 , 32]
mp45 [4 , 228]
mg45 [1 , 23]
no45 [7 , 175]
base (OCT)
ac45 [-78 , 32]
bc45 [1 , 72]
cc45 [3 , 87]
ce45 [-15 , 13]
cn45 [1 , 46]
gf45 [-29 , 25]
gd45 [35 , 210]
gs45 [1 , 22]
hd45 [-20 , 112]
hp45 [-19 , 57]
he45 [15 , 118]
in45 [-57 , -6]
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mc45 [24 , 116]
mp45 [-5 , 111]
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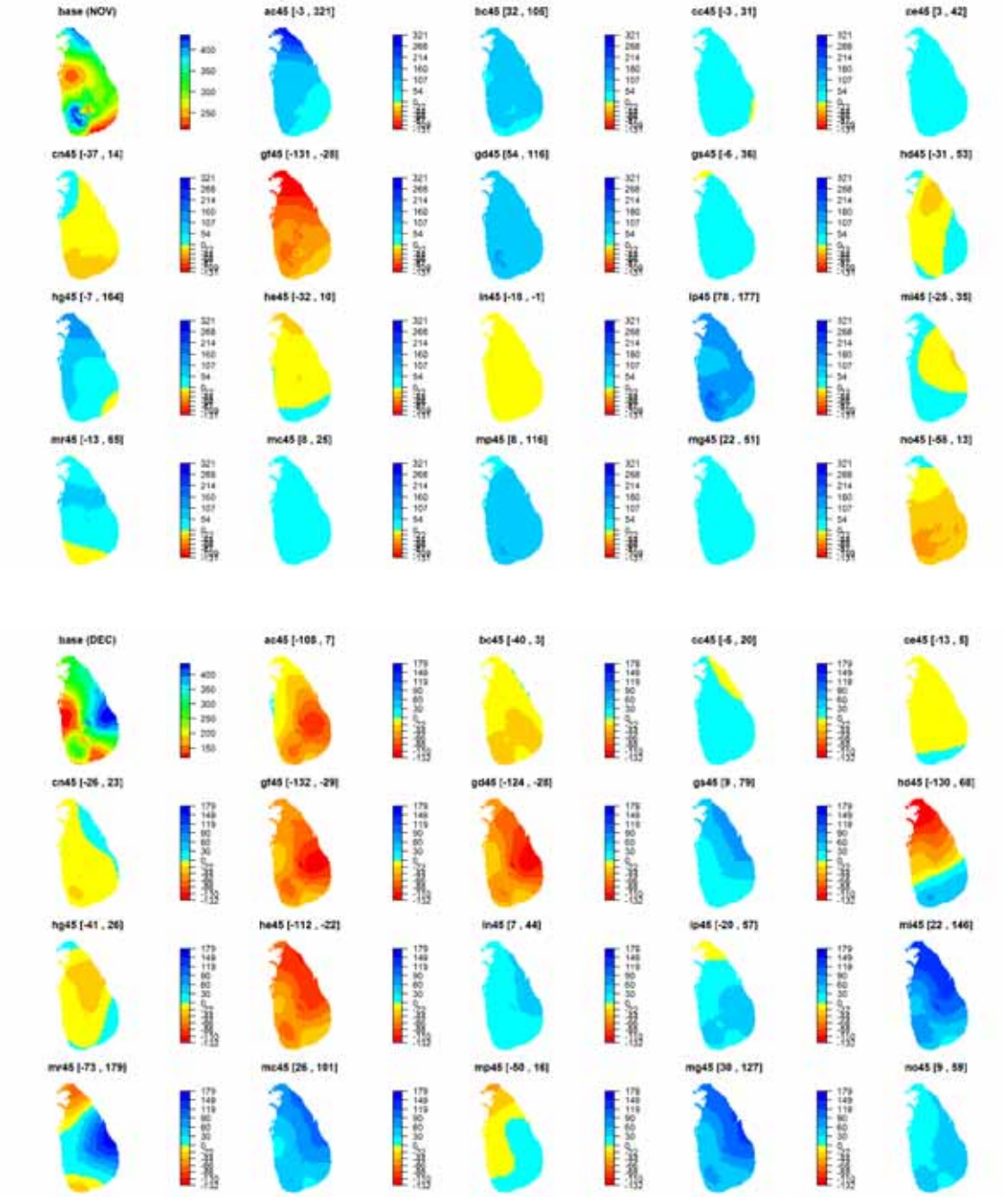
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gd45 [54 , 116]
gs45 [-6 , 36]
hd45 [-31 , 53]
hg45 [-7 , 164]
he45 [-32 , 10]
in45 [-18 , -1]
ip45 [78 , 177]
mi45 [-25 , 35]
mr45 [-13 , 65]
mc45 [8 , 25]
mp45 [8 , 116]
mg45 [22 , 51]
no45 [-58 , 13]
base (DEC)
ac45 [-108 , 7]
bc45 [-40 , 3]
cc45 [-6 , 20]
ce45 [-13 , 8]
cn45 [-26 , 23]
gf45 [-132 , -29]
gd45 [-124 , -28]
gs45 [9 , 79]
hd45 [-130 , 68]
hg45 [-41 , 26]
he45 [-112 , -22]
in45 [7 , 44]
ip45 [-20 , 57]
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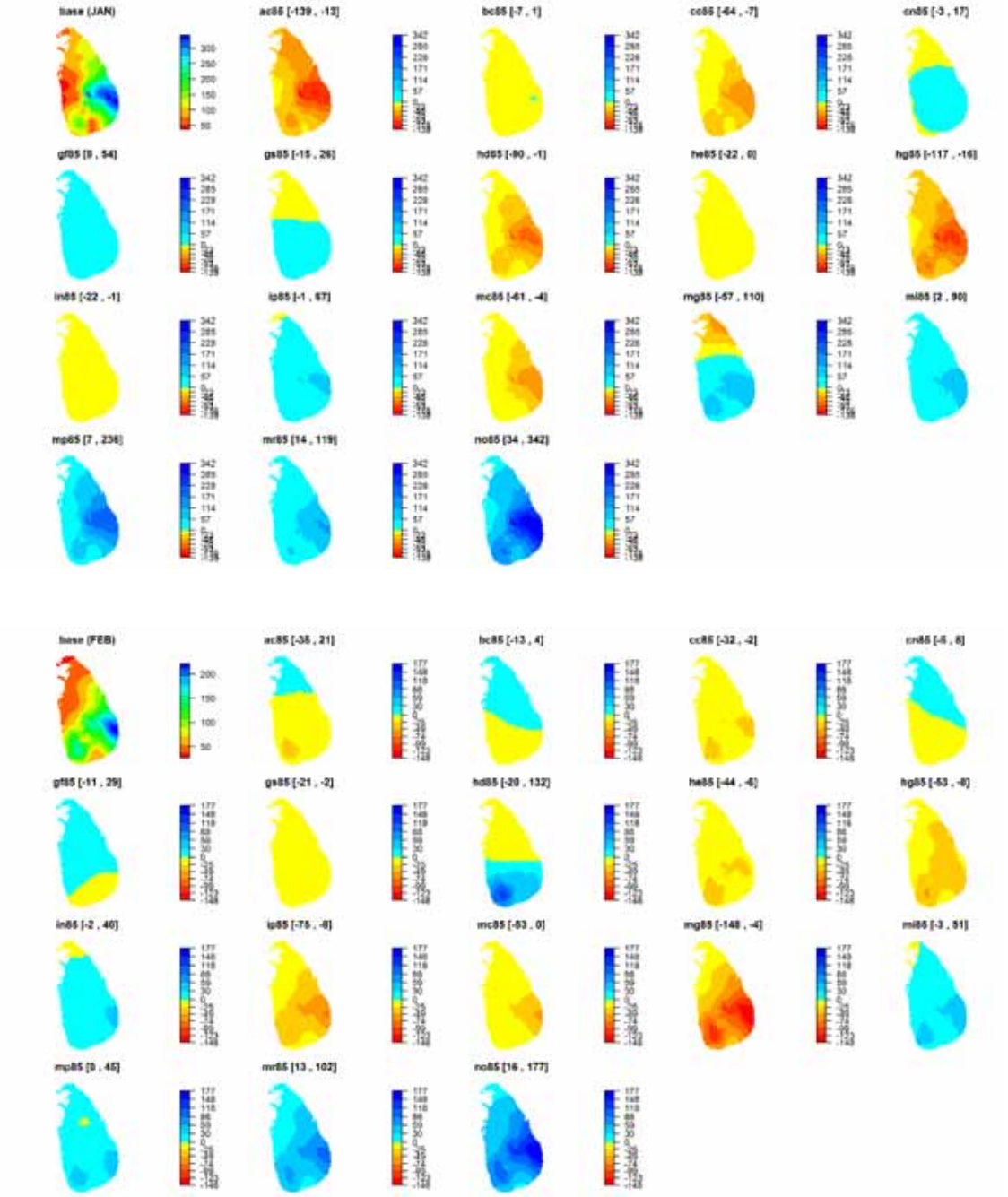
mr45 [-73 , 179]
mc45 [26 , 101]
mp45 [-50 , 16]
mg45 [38 , 127]
no45 [9 , 59]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cc85 [-64 , -7]
cn85 [-3 , 17]
gf85 [9 , 54]
gs85 [-15 , 26]
hd85 [-90 , -1]
he85 [-22 , 0]
hg85 [-117 , -16]
in85 [-22 , -1]
ip85 [-1 , 67]
mc85 [-61 , -4]
mg85 [-57 , 110]
mi85 [2 , 90]
mp85 [7 , 236]
mr85 [14 , 119]
no85 [34 , 342]
base (FEB)
ac85 [-35 , 21]
bc85 [-13 , 4]
cc85 [-32 , -2]
cn85 [-5 , 6]
gf85 [-11 , 29]
gs85 [-21 , -2]
hd85 [-20 , 132]
he85 [-44 , -6]
hg85 [-53 , -6]
in85 [-2 , 40]
ip85 [-75 , -8]
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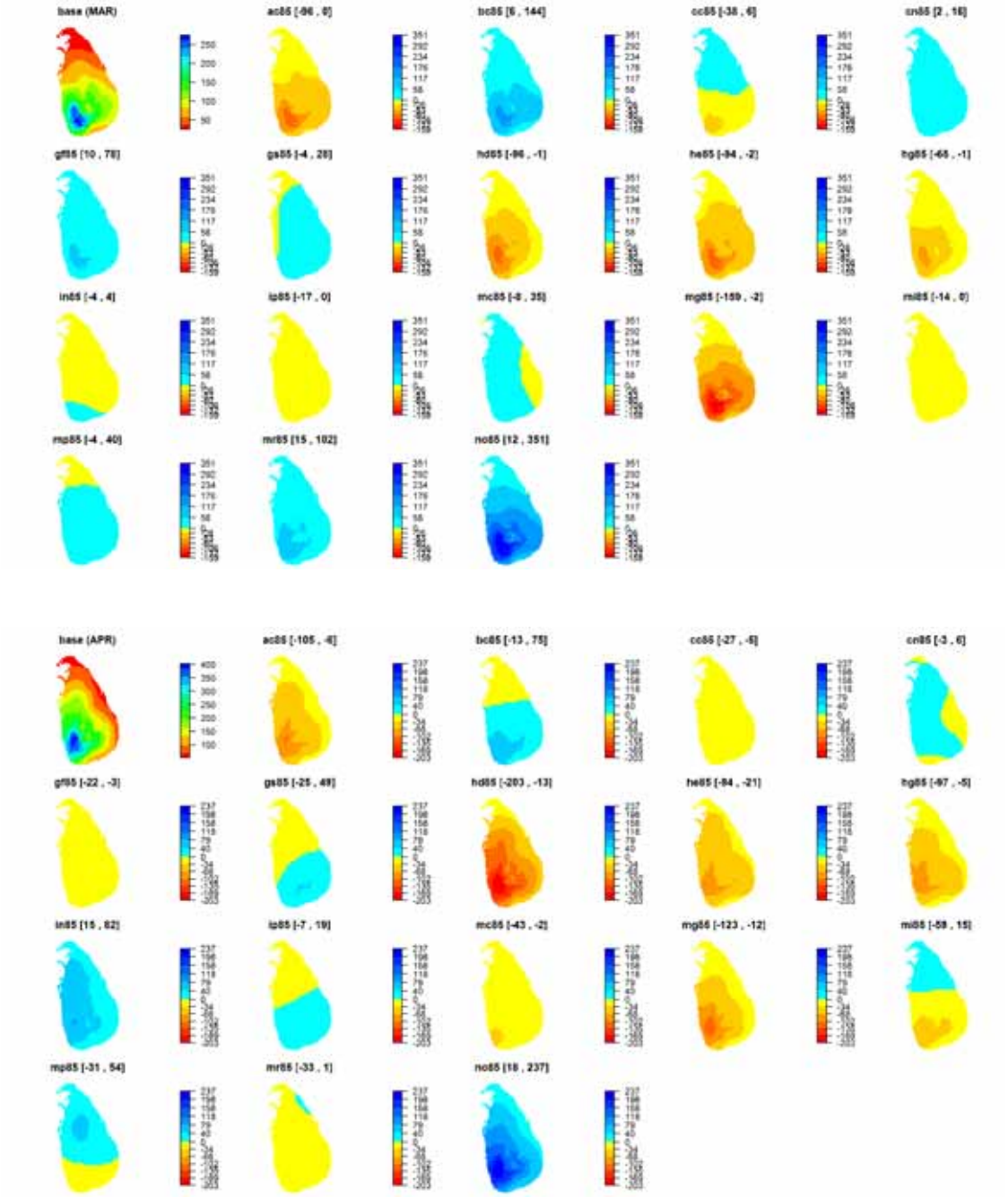
mp85 [0 , 45]
mr85 [13 , 102]
no85 [16 , 177]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gs85 [-4 , 28]
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gf85 [-22 , -3]
gs85 [-25 , 49]
hd85 [-203 , -13]
he85 [-84 , -21]
hg85 [-97 , -5]
in85 [15 , 82]
ip85 [-7 , 19]
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mp85 [-31 , 54]
mr85 [-33 , 1]
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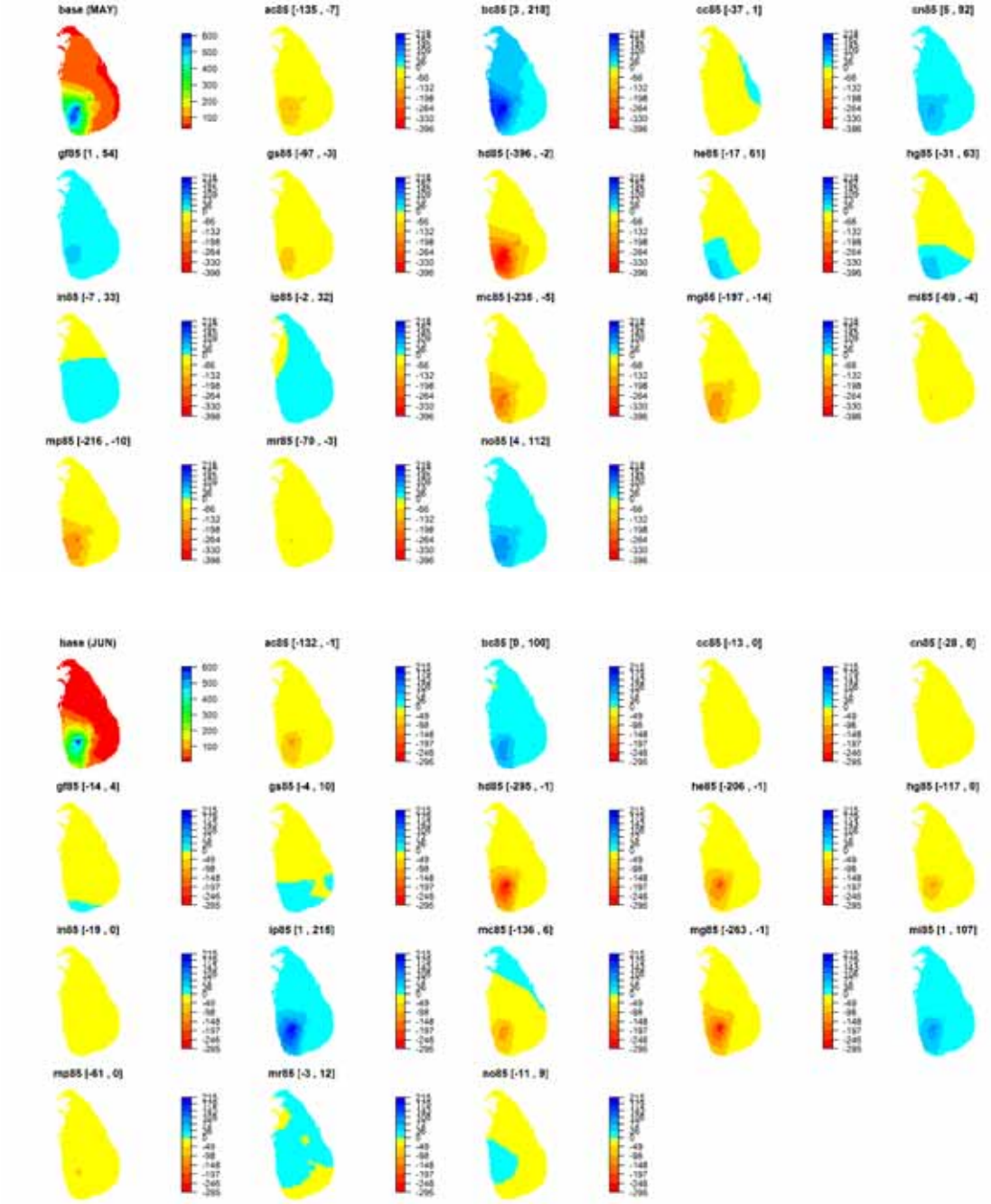
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hg85 [-31 , 63]
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gf85 [-14 , 4]
gs85 [-4 , 10]
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he85 [-206 , -1]
hg85 [-117 , 0]
in85 [-19 , 0]
ip85 [1 , 215]
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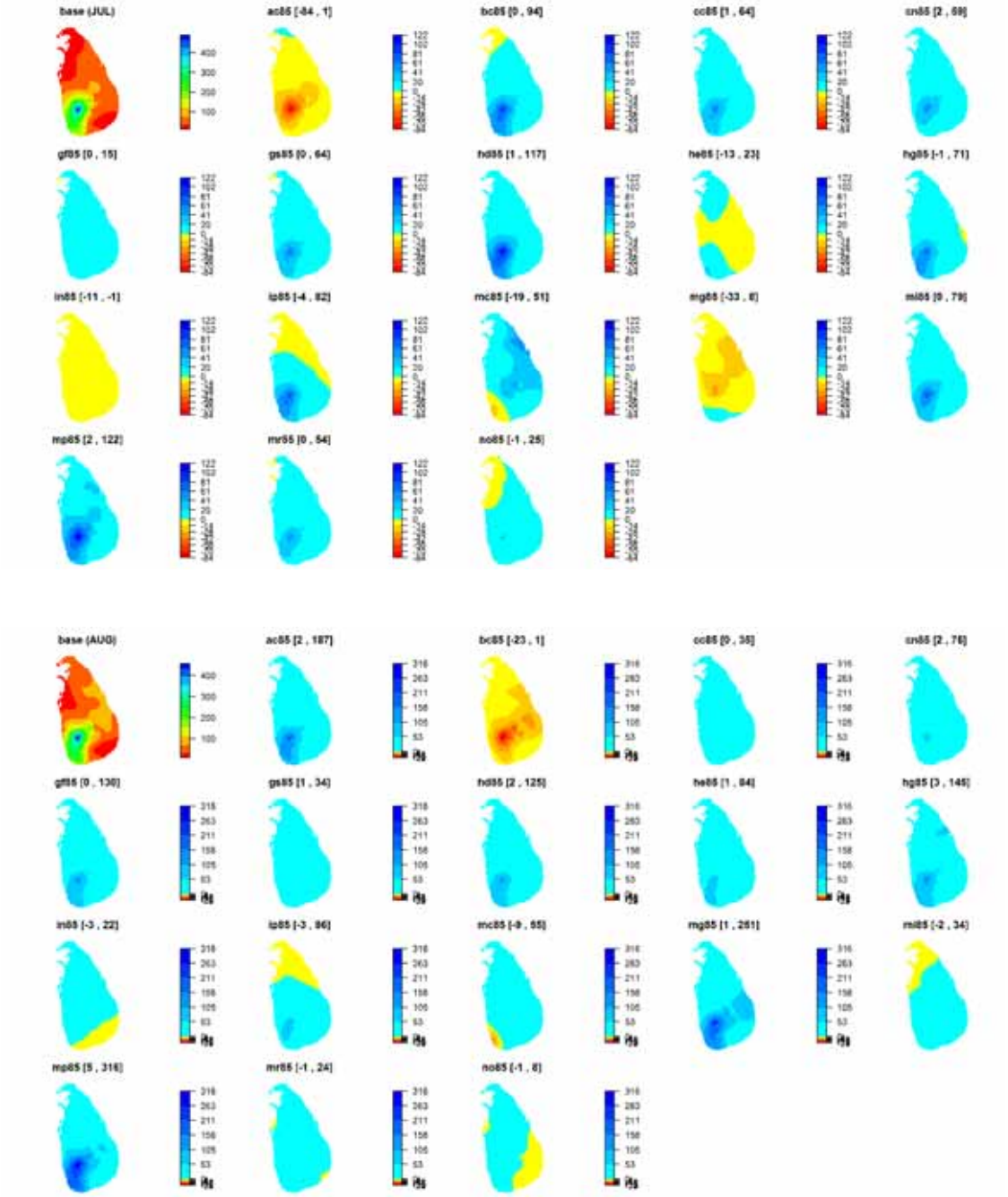
mi85 [1 , 107]
mp85 [-61 , 0]
mr85 [-3 , 12]
no85 [-11 , 9]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he85 [-13 , 23]
hg85 [-1 , 71]
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ip85 [-4 , 82]
mc85 [-19 , 51]
mg85 [-33 , 8]
mi85 [0 , 79]
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mr85 [0 , 54]
no85 [-1 , 25]
base (AUG)
ac85 [2 , 187]
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cc85 [0 , 35]
cn85 [2 , 76]
gf85 [0 , 130]
gs85 [1 , 34]
hd85 [2 , 125]
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hg85 [3 , 146]
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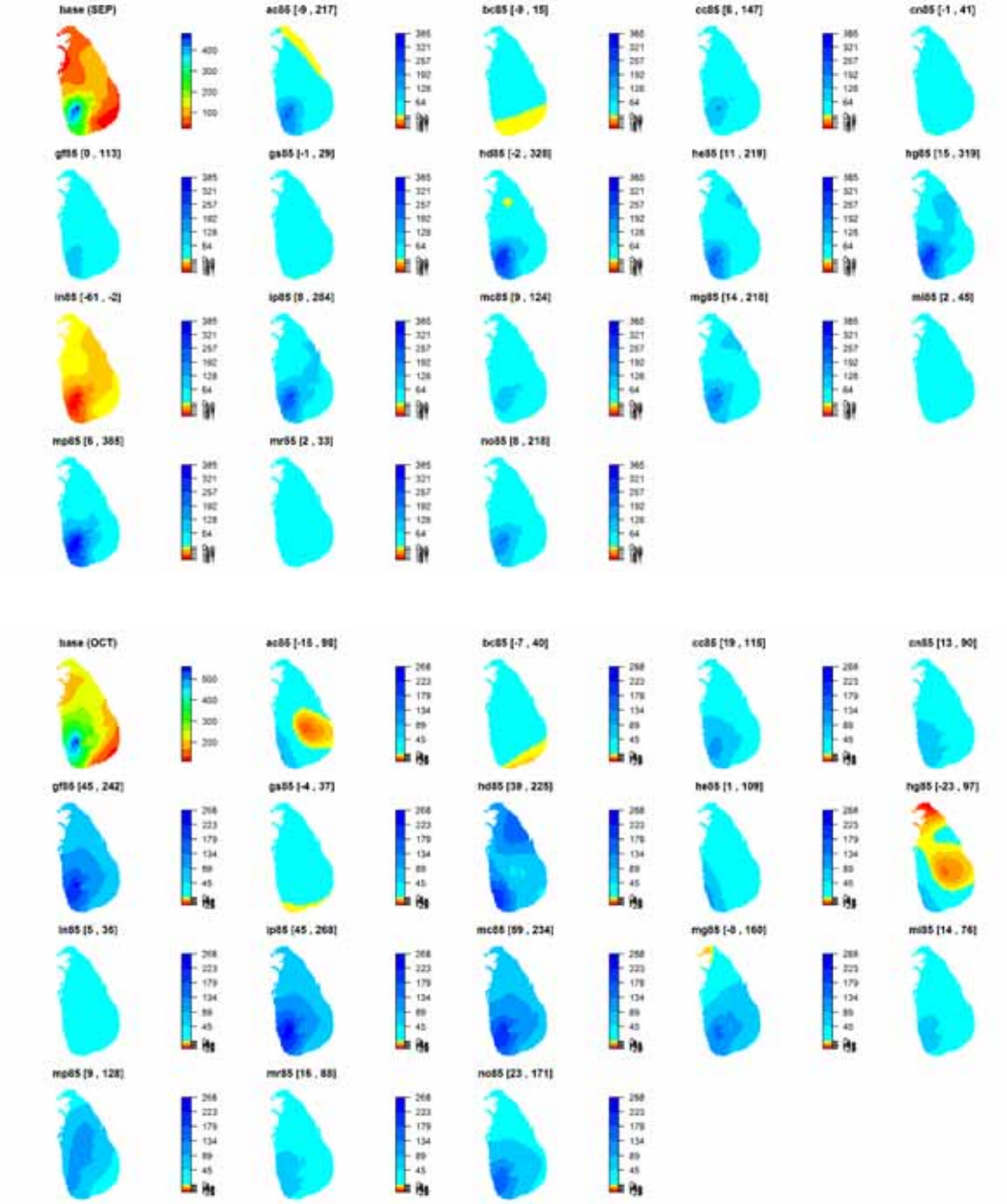
no85 [-1 , 8]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mc85 [9 , 124]
mg85 [14 , 218]
mi85 [2 , 45]
mp85 [6 , 388]
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no85 [8 , 218]
base (OCT)
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bc85 [-7 , 40]
cc85 [19 , 116]
cn85 [13 , 90]
gf85 [45 , 242]
gs85 [-4 , 37]
hd85 [39 , 225]
he85 [1 , 109]
hg85 [-23 , 97]
in85 [5 , 36]
ip85 [45 , 268]
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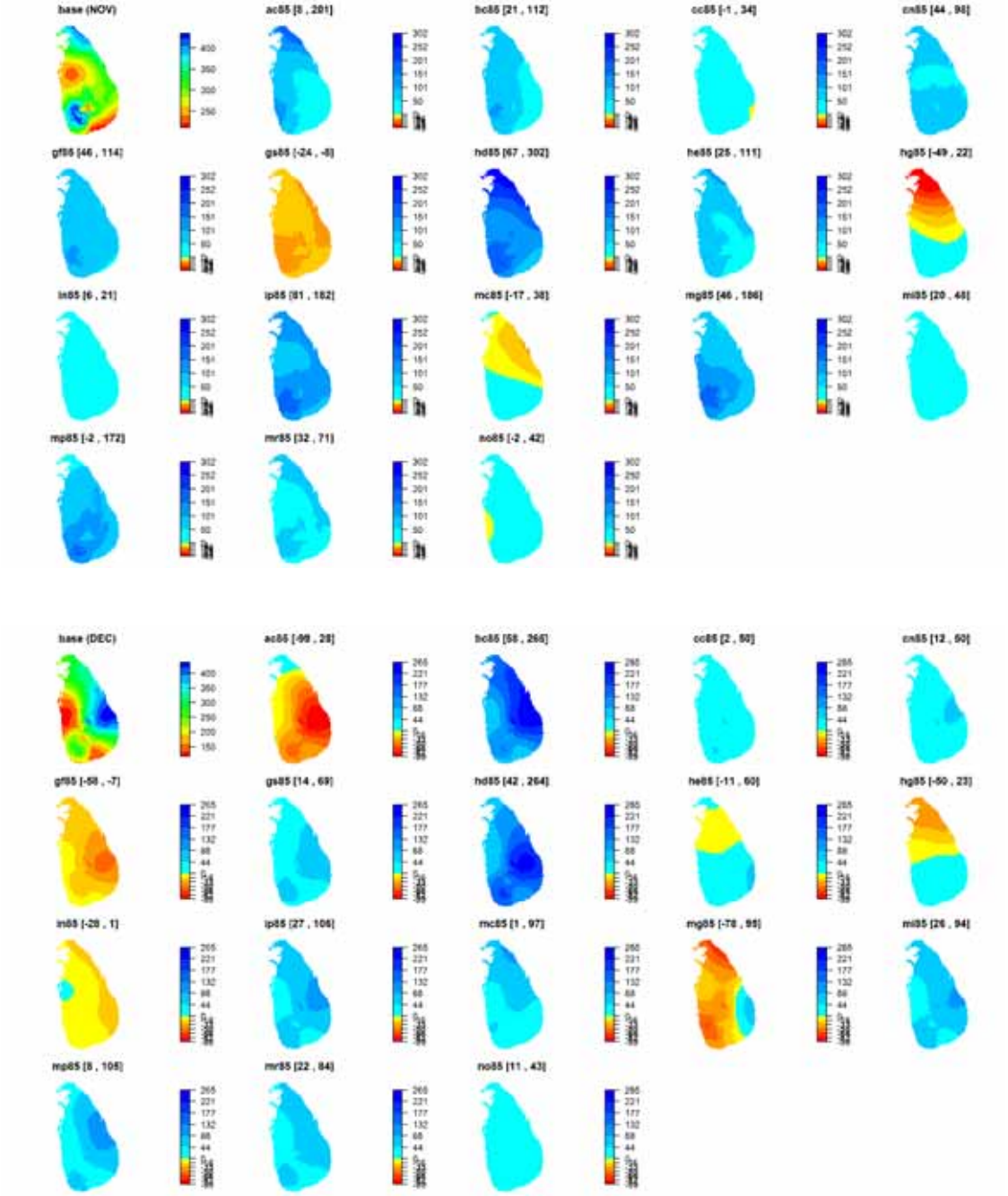
mg85 [-8 , 160]
mi85 [14 , 76]
mp85 [9 , 128]
mr85 [15 , 88]
no85 [23 , 171]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cn85 [44 , 98]
gf85 [46 , 114]
gs85 [-24 , -8]
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he85 [25 , 111]
hg85 [-49 , 22]
in85 [6 , 21]
ip85 [81 , 162]
mc85 [-17 , 38]
mg85 [46 , 106]
mi85 [20 , 48]
mp85 [-2 , 172]
mr85 [32 , 71]
no85 [-2 , 42]
base (DEC)
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hg85 [-50 , 23]
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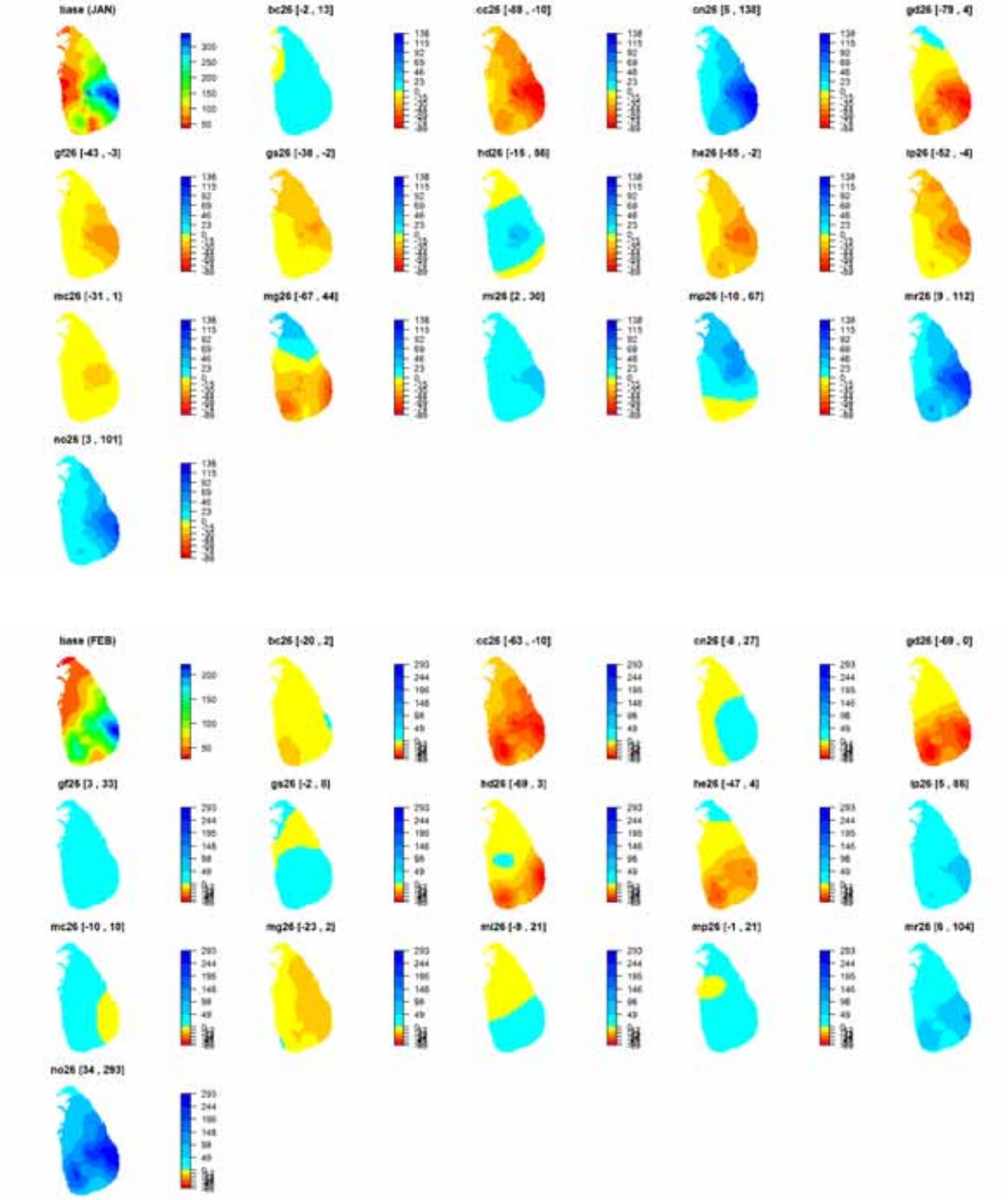
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hd26 [-15 , 56]
he26 [-55 , -2]
ip26 [-52 , -4]
mc26 [-31 , 1]
mg26 [-67 , 44]
mi26 [2 , 30]
mp26 [-10 , 67]
mr26 [9 , 112]
no26 [3 , 101]
base (FEB)
bc26 [-20 , 2]
cc26 [-63 , -10]
cn26 [-8 , 27]
gd26 [-69 , 0]
gf26 [3 , 33]
gs26 [-2 , 8]
hd26 [-69 , 3]
he26 [-47 , 4]
ip26 [5 , 66]
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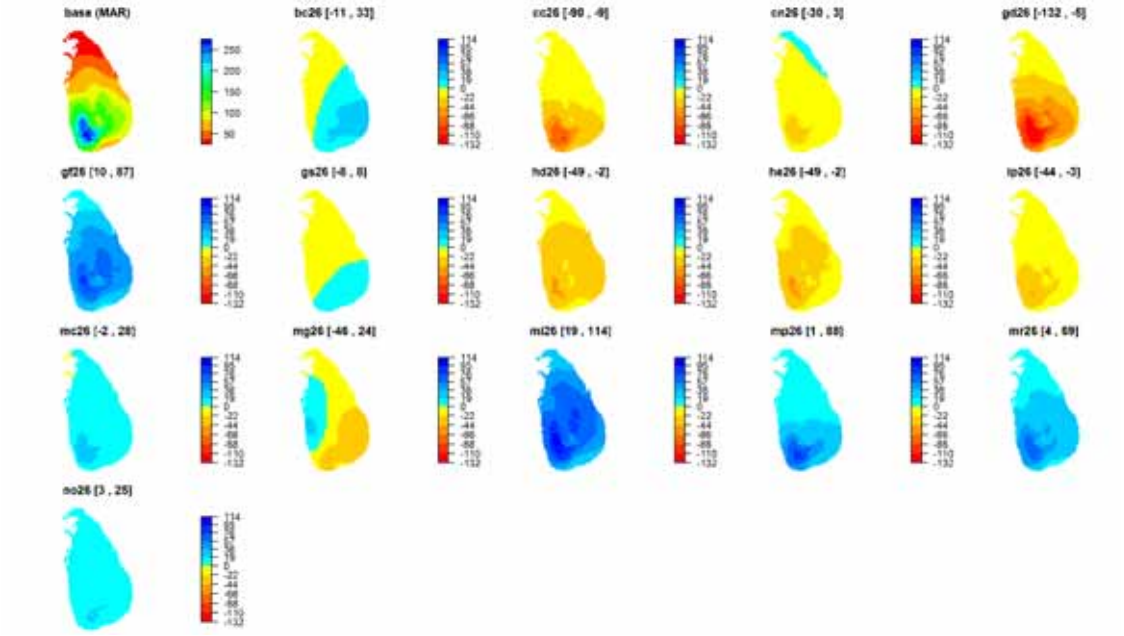
mg26 [-23 , 2]
mi26 [-9 , 21]
mp26 [-1 , 21]
mr26 [9 , 104]
no26 [34 , 293]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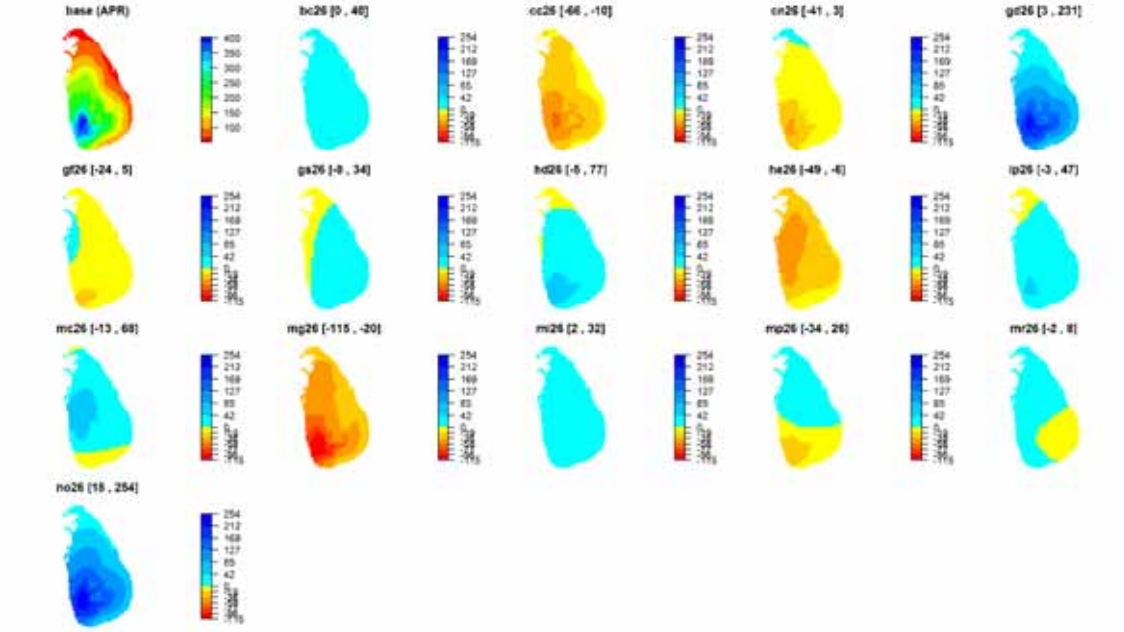
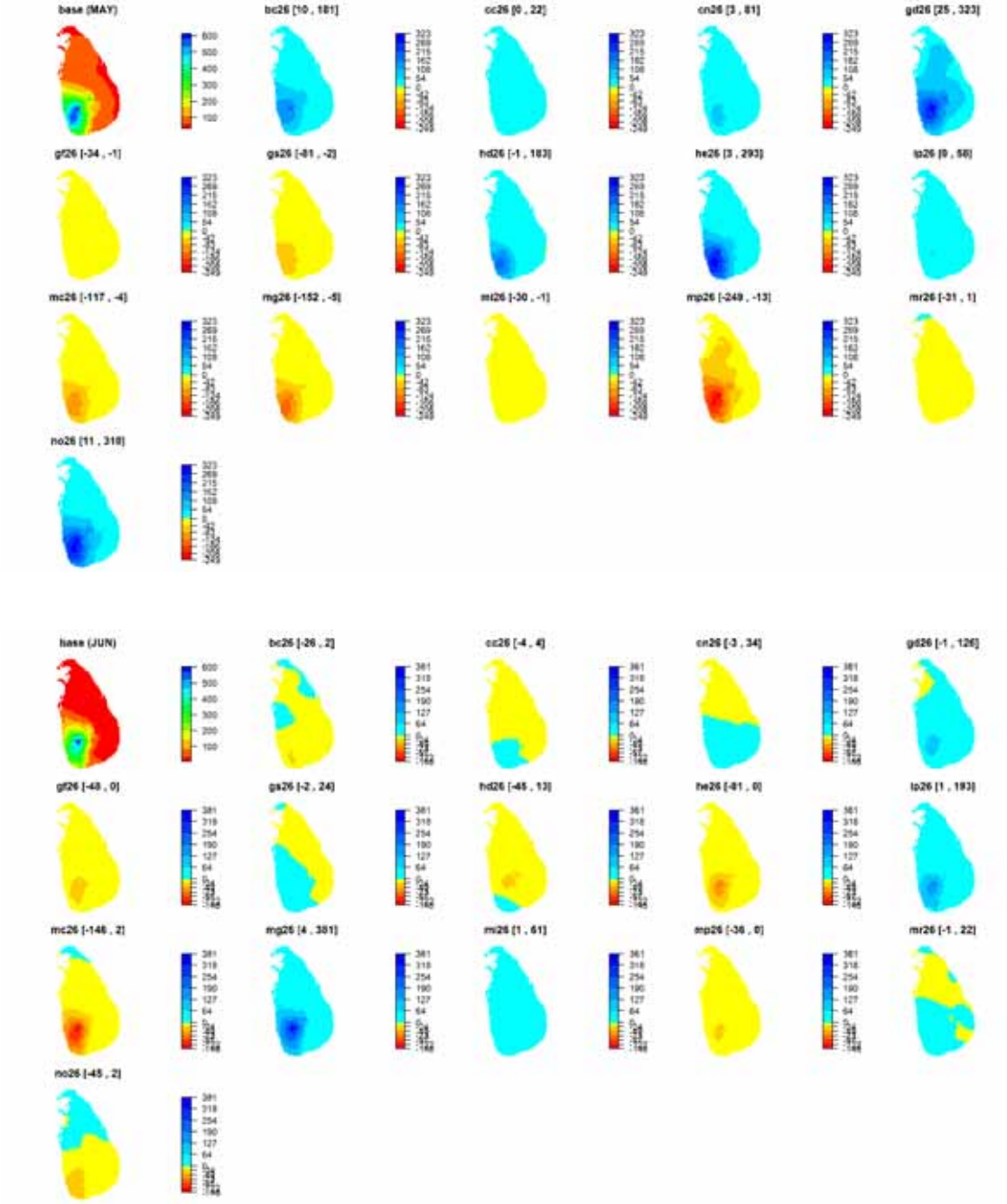
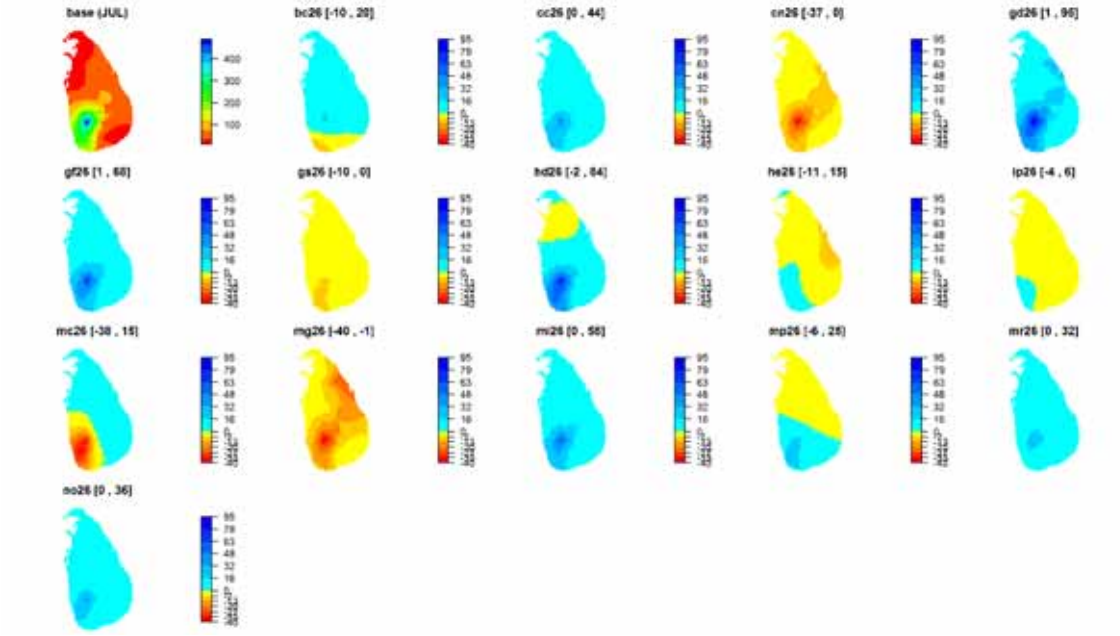
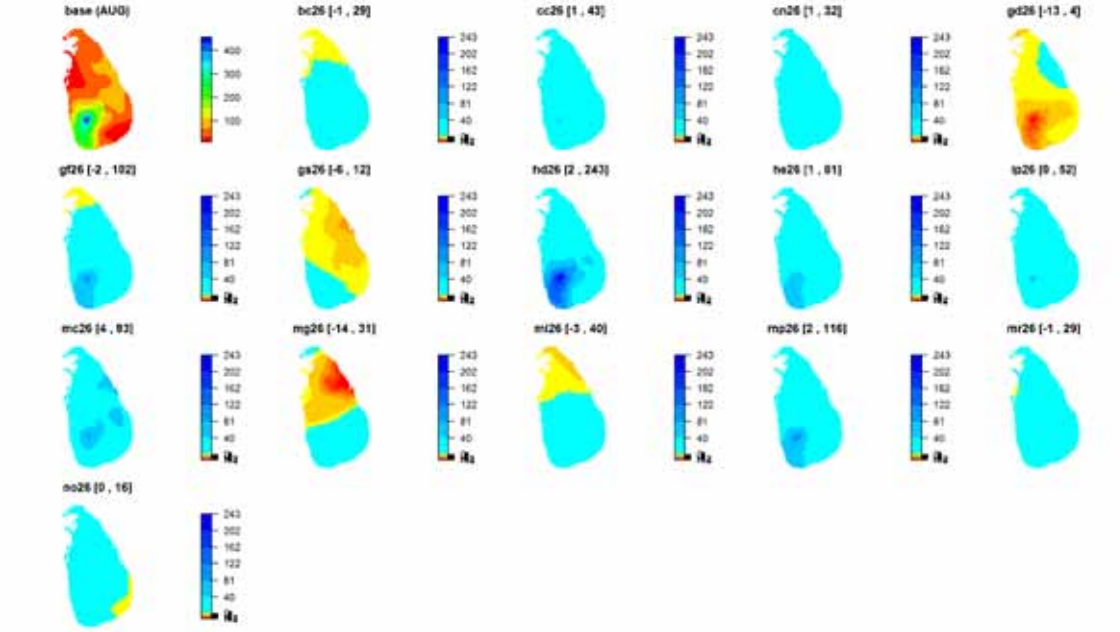
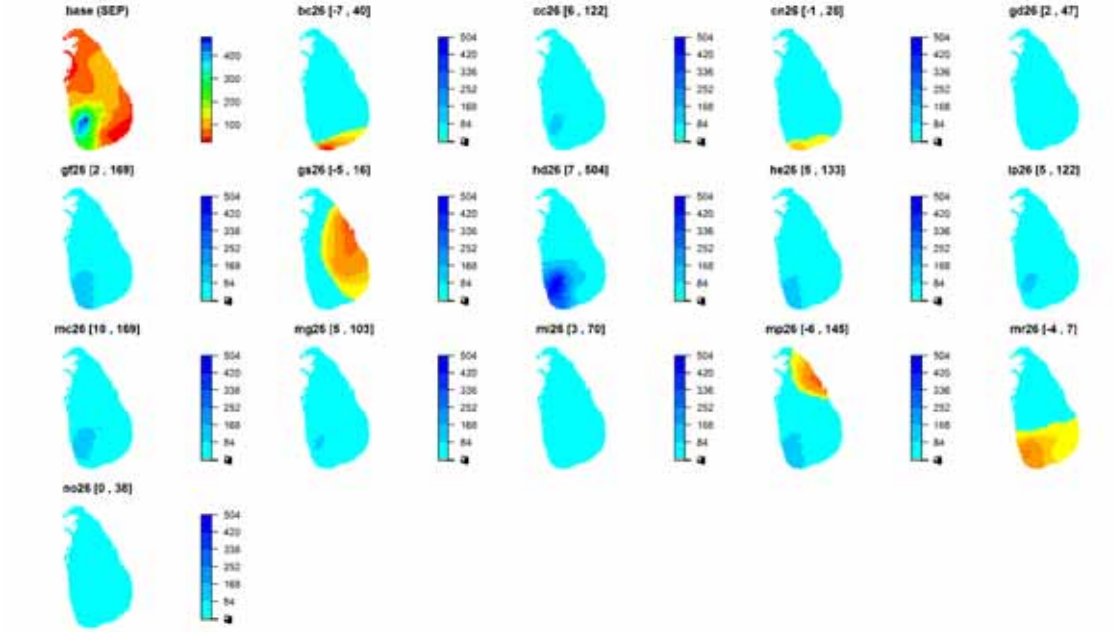
cn26 [-30 , 3]
gd26 [-132 , -5]
gf26 [10 , 87]
ga26 [-8 , 8]
hd26 [-49 , -2]
he26 [-49 , -2]
ip26 [-44 , -3]
mc26 [-2 , 28]
mg26 [-46 , 24]
mi26 [19 , 114]
mp26 [1 , 88]
mr26 [4 , 69]
no26 [3 , 25]

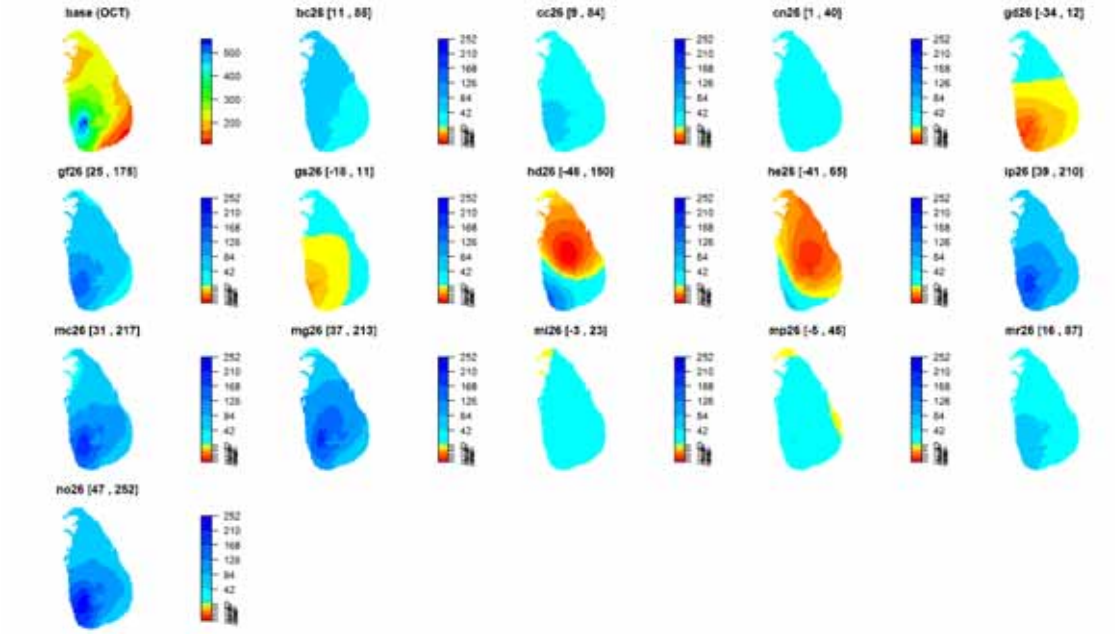

base (APR)
bc26 [0 , 46]
cc26 [-66 , -10]
cn26 [-41 , 3]
gd26 [3 , 231]
gf26 [-24 , 5]
ga26 [-8 , 34]
hd26 [-5 , 77]
he26 [-49 , -6]
ip26 [-3 , 47]
mc26 [-13 , 68]
mg26 [-115 , -20]
mi26 [2 , 32]
mp26 [-34 , 26]
mr26 [-2 , 8]
no26 [18 , 254]

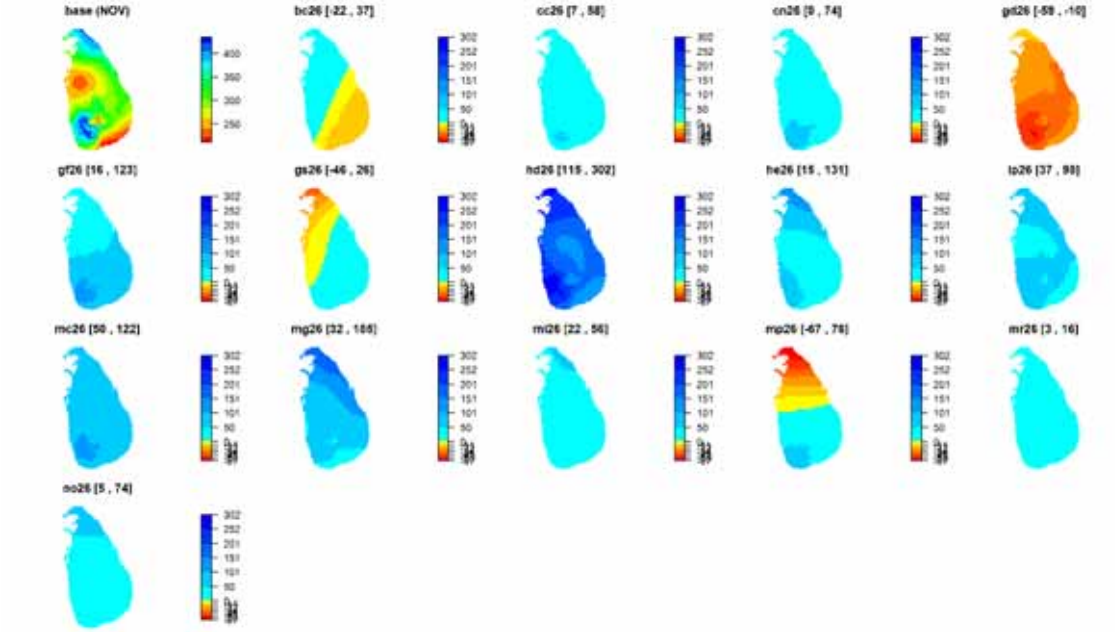

base (MAY)
bc26 [10 , 181]
cc26 [0 , 22]
cn26 [3 , 81]
gd26 [25 , 323]
gf26 [-34 , -1]
gs26 [-81 , -2]
hd26 [-1 , 183]
he26 [3 , 293]
ip26 [0 , 56]
mc26 [-117 , -4]
mg26 [-152 , -5]
mi26 [-30 , -1]
mp26 [-249 , -13]
mr26 [-31 , 1]
no26 [11 , 318]
base (JUN)
bc26 [-26 , 2]
cc26 [-4 , 4]
cn26 [-3 , 34]
gd26 [-1 , 126]
gf26 [-48 , 0]
gs26 [-2 , 24]
hd26 [-45 , 13]
he26 [-81 , 0]
ip26 [1 , 193]
mc26 [-146 , 2]
mg26 [4 , 381]
mi26 [1 , 61]
mp26 [-36 , 0]
mr26 [-1 , 22]
no26 [-45 , 2]

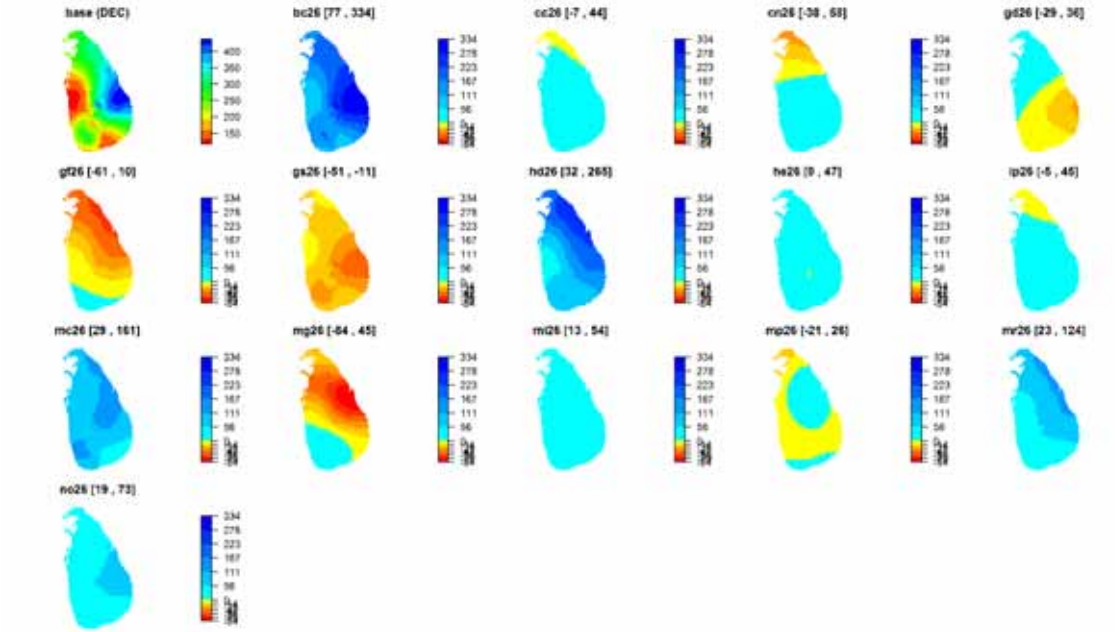

base (JUL)
bc26 [-10 , 20]
cc26 [0 , 44]
cn26 [-37 , 0]
gd26 [1 , 96]
gf26 [1 , 68]
gs26 [-10 , 0]
hd26 [-2 , 84]
he26 [-11 , 15]
ip26 [-4 , 6]
mc26 [-38 , 15]
mg26 [-40 , -1]
mi26 [0 , 56]
mp26 [-6 , 25]
mr26 [0 , 32]
no26 [0 , 36]


base (AUG)
bc26 [-1 , 29]
cc26 [1 , 43]
cn26 [1 , 32]
gd26 [-13 , 4]
gf26 [-2 , 102]
gs26 [-6 , 12]
hd26 [2 , 243]
he26 [1 , 81]
ip26 [0 , 52]
mc26 [4 , 93]
mg26 [-14 , 31]
mi26 [-3 , 40]
mp26 [2 , 116]
mr26 [-1 , 29]
no26 [0 , 16]


base (SEP)
bc26 [-7 , 40]
cc26 [6 , 122]
cn26 [-1 , 28]
gd26 [2 , 47]
gf26 [2 , 169]
gs26 [-5 , 16]
hd26 [7 , 504]
he26 [5 , 133]
ip26 [5 , 122]
mc26 [19 , 169]
mg26 [5 , 103]
mi26 [3 , 70]
mp26 [-6 , 145]
mr26 [-4 , 7]
no26 [0 , 38]


base (OCT)
bc26 [11 , 88]
cc26 [9 , 84]
cn26 [1 , 40]
gd26 [-34 , 12]
gf26 [25 , 178]
gs26 [-18 , 11]
hd26 [-46 , 150]
he26 [-41 , 65]
ip26 [39 , 210]
mc26 [31 , 217]
mg26 [37 , 213]
mi26 [-3 , 23]
mp26 [-5 , 45]
mr26 [16 , 87]
no26 [47 , 252]


base (NOV)
bc26 [-22 , 37]
cc26 [7 , 58]
cn26 [9 , 74]
gd26 [-59 , -10]
gf26 [16 , 123]
gs26 [-46 , 26]
hd26 [115 , 302]
he26 [15 , 131]
ip26 [37 , 98]
mc26 [50 , 122]
mg26 [32 , 186]
mi26 [22 , 56]
mp26 [-67 , 78]
mr26 [3 , 16]
no26 [5 , 74]


base (DEC)
bc26 [77 , 334]
cc26 [-7 , 44]
cn26 [-38 , 68]
gd26 [-29 , 36]
gf26 [-61 , 10]
gs26 [-51 , -11]
hd26 [32 , 265]
he26 [9 , 47]
ip26 [-5 , 46]
mc26 [29 , 161]
mg26 [-84 , 45]
mi26 [13 , 54]
mp26 [-21 , 26]
mr26 [23 , 124]
no26 [19 , 73]