

In the next sections, climatological aspects of sea level pressure and upper air circulation features are discussed.

2.1. Sea Level Pressure

The mean sea level pressure chart for the month of July is shown in Fig 2.3. The pattern shows a heat low over the northwestern parts of India and adjoining Pakistan with a south-north pressure gradient. The pressure gradient between the equator and 10°N is about 12 hPa. However, by September, the pressure gradient generally weakens and by October the pressure gradient completely reverses with higher pressure over the northern parts of India.

The surface sea level pressure charts for Oct to Dec are given in Fig.2.4, 2.5 and 2.6 respectively. By October, a low pressure area gets established over the Central and South Bay of Bengal and adjoining east coast, which shifts to south Bay in November and further southwards, close to the equator in December. This low pressure area is more marked over the southwest Bay in October and November. In the Arabian Sea, the low pressure area is not well marked during these months. However, an east-west oriented trough of low pressure is observed in nearly the corresponding latitudes as in the Bay of Bengal, at least in October and November. In October, the pressure gradient is generally weak, which gets strengthened by November. While the low pressure area gets shifted southwards, the high pressure area associated with the Siberian High also gets strengthened over the northern parts of the country. The surface pressure gradient (high in the north and low in the south) over the Bay of Bengal also strengthens. During November and December, the isobars are nearly parallel to the equator, suggesting stronger surface easterlies/northeasterlies over the Bay of Bengal.

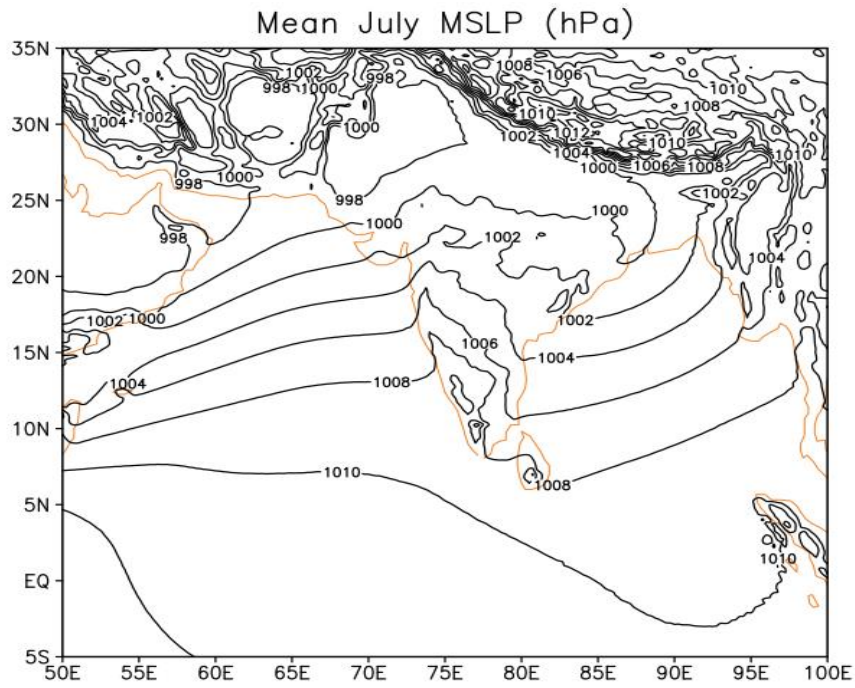


Fig. 2.3. Mean Sea Level Pattern (hPa) during July (period: 1979-2021). Source: ERA5 reanalysis.

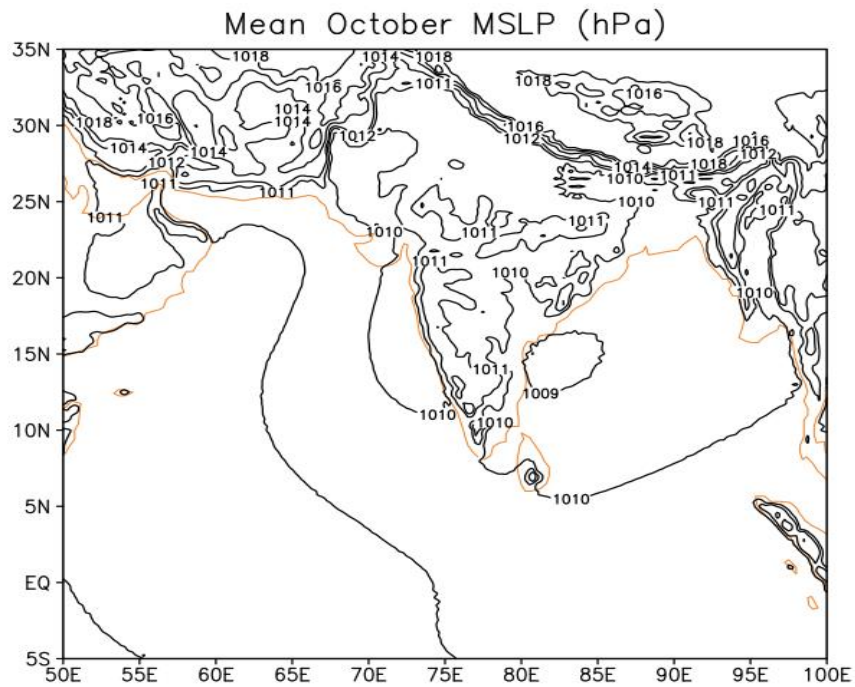


Fig. 2.4. Same as in Fig. 2.3 but for October.

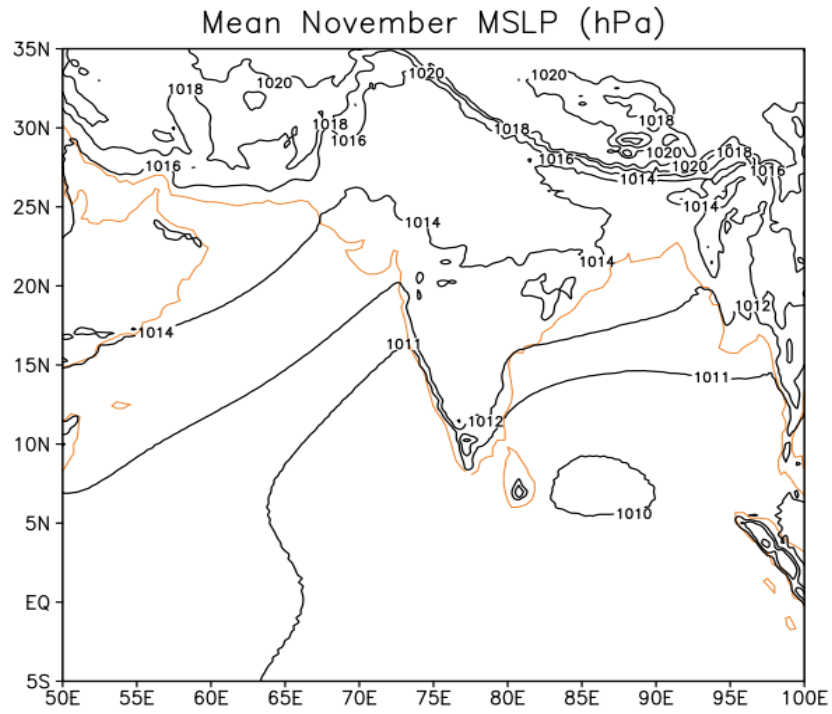


Fig. 2.5. Same as Fig 2.3 but for November.

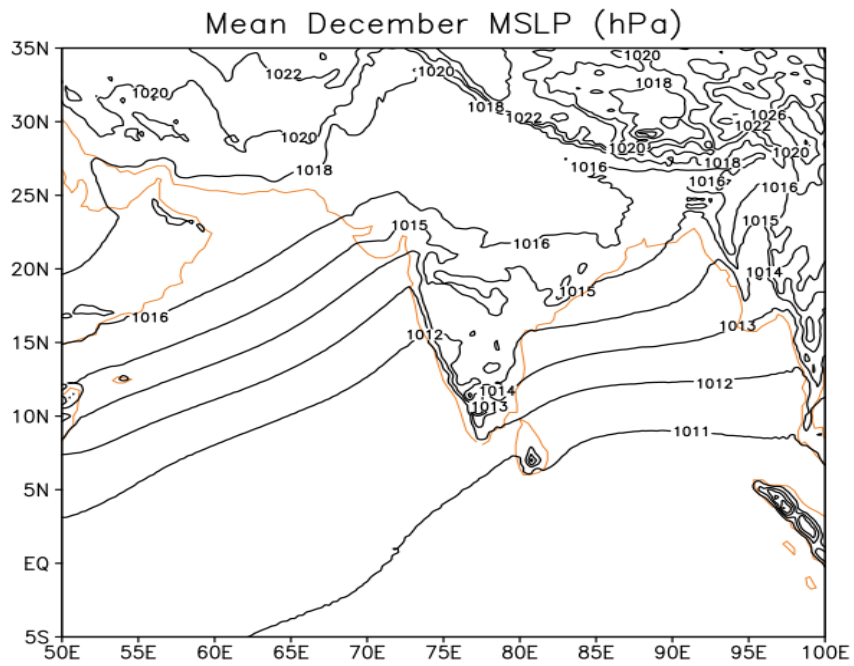


Fig. 2.6. Same as Fig 2.3 but for December.