

March-April 2019 unprecedented severe rainfall in Iran

One week before Iranian New Year beginning on March 21, the provinces bordering to the Caspian Sea and those provinces in the west of Iran experienced unprecedented severe rainfall that resulted in breaking the records of the maximum daily rainfall in 8 stations of the exposed area in March and April. The severe impact weather system led to the maximum daily rainfall of 187.8 mm has been recorded in Koohrang Station in Chahar Mahal-Bakhtiari province. On the average, about 28% of the annual rainfall of the country was received in 17 – 31 March, 2019. Most of the provinces located in the south of Caspian Sea and west of Iran received 30% to 60% of the total annual precipitation in the second half of March 2019. The highest percentage of annual precipitation was received in Hamedan province with about 60%.

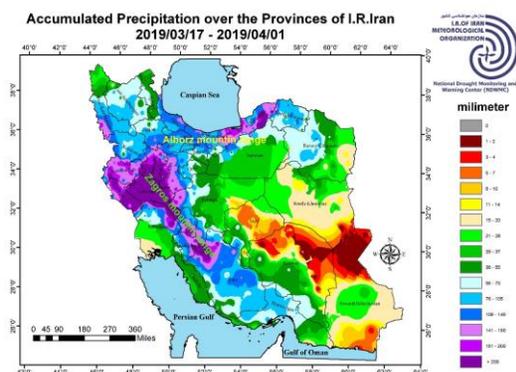


Fig 1. Accumulated precipitation over the provinces of Iran (2019/03/17-2019/04/01)

The peak discharge of the resulted flood entering to the Karkhe dam's reservoir located in Khuzestan province, reached to 8400m³/sec. This huge amount of water was successfully managed in this dam. I. R. of Iran Meteorological Organization (IRIMO)

had started to issue early warning notices from 4 to 5 days earlier. According to the remarks by the President Roohani in the cabinet meeting, the early warnings issued by IRIMO contributed greatly to dealing with the flood impacts, reported by IRNA. Unfortunately, about 70 people were killed because of these floods or related events; even though they had received early warning notices.

During the activity of high-impact weather system, the low pressure of the Mediterranean Sea merged into the Red Sea low pressure encircled by 1008hpa isobar, and covered vast area from east of Mediterranean Sea to Iraq, the Zagros Mountains and Iran Plateau. Simultaneously, the contribution of high pressure on the north of the Indian Ocean and Oman Sea strengthened the injection of moisture mainly from this area to the western and Southern regions of Iran, Iraq and Saudi Arabia peninsula. The deep trough in upper levels extending from the Mediterranean to North West Africa and Red Sea, and the cyclonic curvature of the polar Jet stream on the east of Mediterranean Sea, intensified warm humid air flux into the low pressure system. The North west-South east direction of Zagros Mountains increased the intensity of heavy rainfall due to its orographic effect.

Climate Outlook over ECO region:

CFSv.2 statistically post processed seasonal forecast data for May to July 2019 show that the most of ECO region and west Asian countries may experience normal to above normal precipitation.

In the same period, most of ECO region is expected to be normal to 1-2 °C above normal temperature. A weak condition is predicted for El-Nino.

• **Precipitation**

Precipitation in the most of west Asian and ECO region will be normal to above normal during May to July 2019. Zagros, Northwest of Iran, most of Turkey and parts of Afghanistan, Pakistan expected to experience above normal precipitation (Fig. 2).

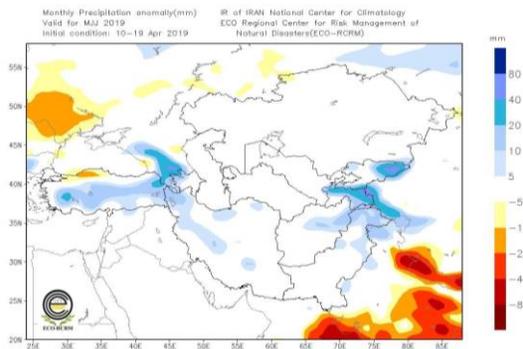


Fig 2. Precipitation forecast over west Asian countries and ECO region for May to July 2019.

• **Temperature**

Approximately all of west Asian and ECO countries will experience normal to above normal temperature during May to July. Temperature in parts of Pakistan, Afghanistan, Kazakhstan, Turkmenistan, Uzbekistan and parts of North Caspian, Southeast of Iran expected to be above normal. (Fig. 2).

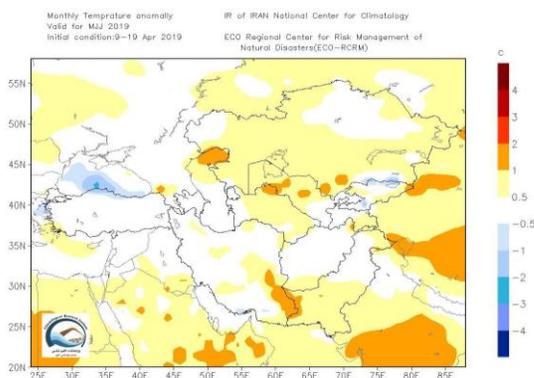


Fig 3. Mean temperature forecast over West Asian countries and ECO region for May to July 2019.

• **Niño forecast**

Most of the dynamical and statistical model forecasts issued during mid-April 2019 indicate weak El Niño conditions for the Apr-Jun season, continuing into summer and fall 2019, weakening but not disappearing by late fall. In the most recent week, the SST anomaly in the Nino3.4 region was 0.9°C.

Fig 4 shows monthly evolution of El-Niño for May-July 2019. Red colored column is forecasted SST in Nino3.4 region, while blue-colored bars represent observed SST retrieved from NCAR center.

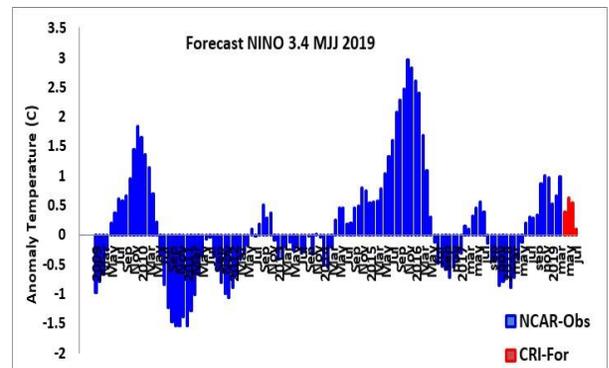


Fig 4. Nino3.4 forecast indicates less than 0.9°C El-Niño condition during May to July 2019.

Mashhad Climate Centre(MCC)
 And ECO-Regional Centre for Risk
 Management of natural disasters (ECO-RCRM)
www.cri.ac.ir or www.eco-rcrm.ir

