

# Extreme heat wave, heavy rains and floods hit many places across Northern hemisphere

**Abstract:** Extreme and continuous heat wave hit Southern Europe, Southern Asia, Central Asia and west and south of the USA, with the maximum temperature reaching 46.4°C in Greece and above 45°C in west and south of the USA, and more than 140 maximum temperature records broken. Heavy rains and floods hit West Asia, South Asia, East Asia, Russia and Canada. The Typhoon “Doksuri” had landfall on northern Philippine, resulting heavy rains, floods and landslides, and the affected population reached more than 1.02 million.

## I. Overview of global weather

### 1. Temperature

In July 2023, the mean temperature of most of the globe was close to or a little higher than normal (Fig.1), within which the temperature positive difference reached 2~3°C in the northern Africa, southern Europe, Central Asia, west of Russia, Far East region, and west and northeast of North America, and 4~6°C in Alaska and east of Canada. The daily maximum temperature had broken the historical record of the corresponding period of time in Spain, France, Italy, Greece, Korea, the USA and Canada (Fig.2).

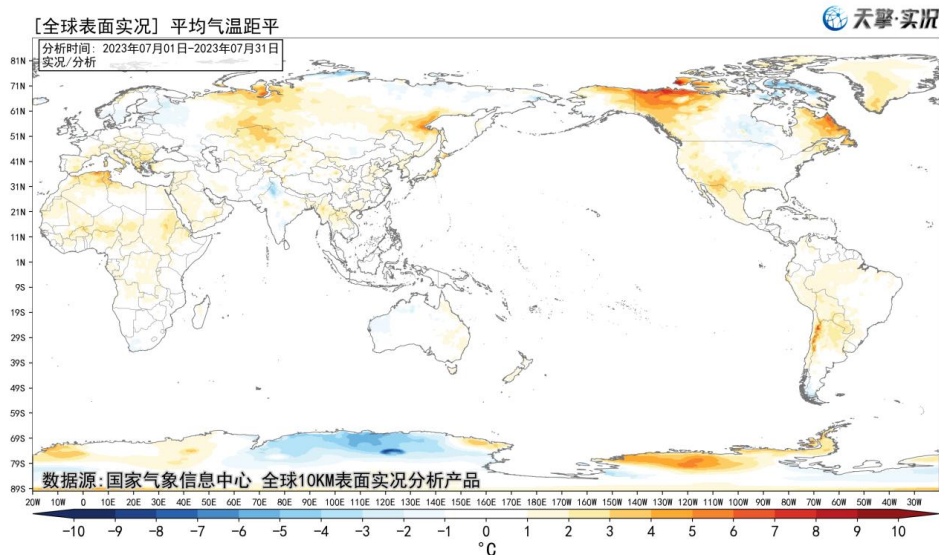


Fig.1 Global mean temperature anomaly in July 2023.

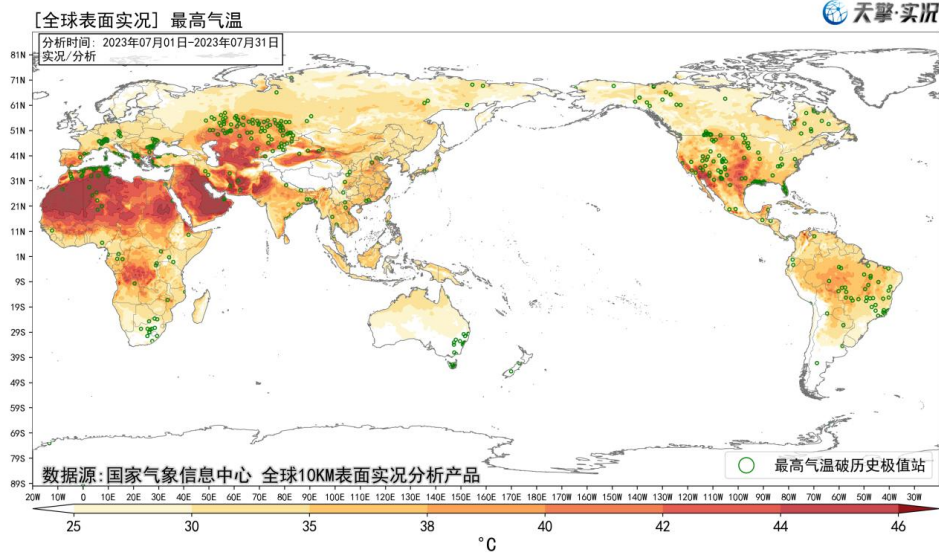


Fig.2 Global maximum temperature (unit: °C) and stations with historical extremity record broken (green pads)

## 2. Precipitations

In July 2023, the monthly total precipitation reached 140~220mm in East and South Asia, north of South America, and central of Africa, 260~380mm in northeast, southwest and North China, India, Pakistan, Bangladesh, Vietnam, Mexico, Brazil, Chile, Liberia and Nigeria, within which some local precipitation beyond 400mm (Fig.3). The total precipitation above was 40~70% more than normal, in some places 2 times more than normal (Fig.4).

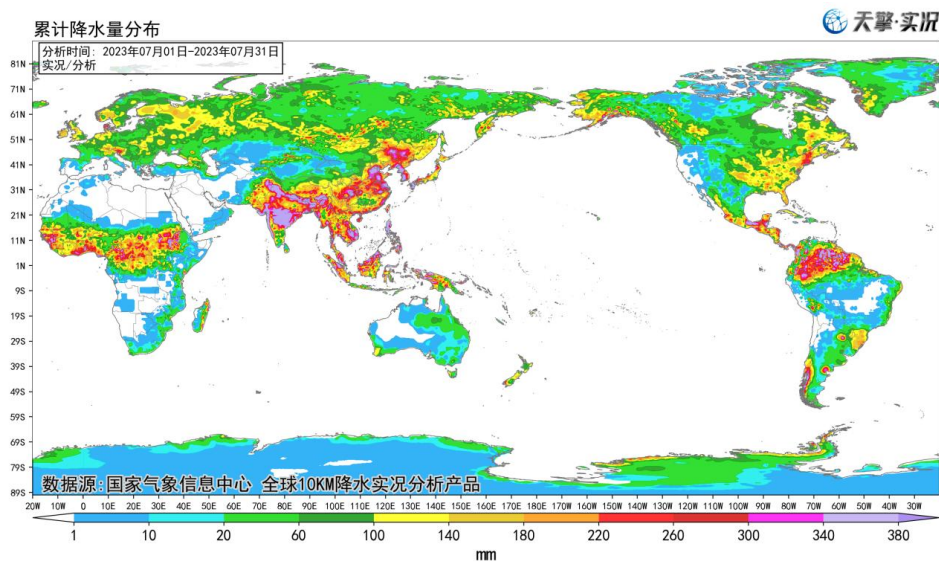


Fig.3 Global total precipitation (unit: mm)

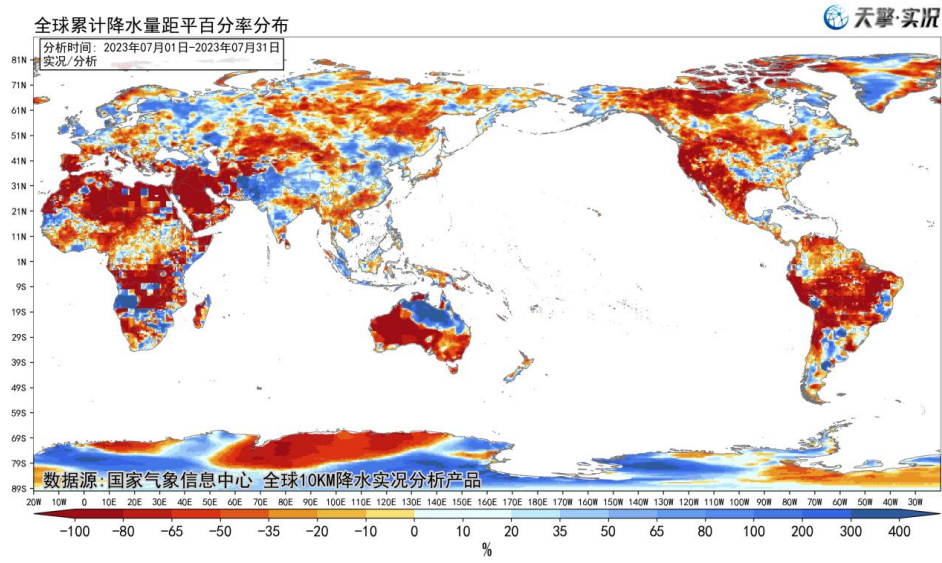


Fig.4 Global total precipitation percentage deviation (unit: %)