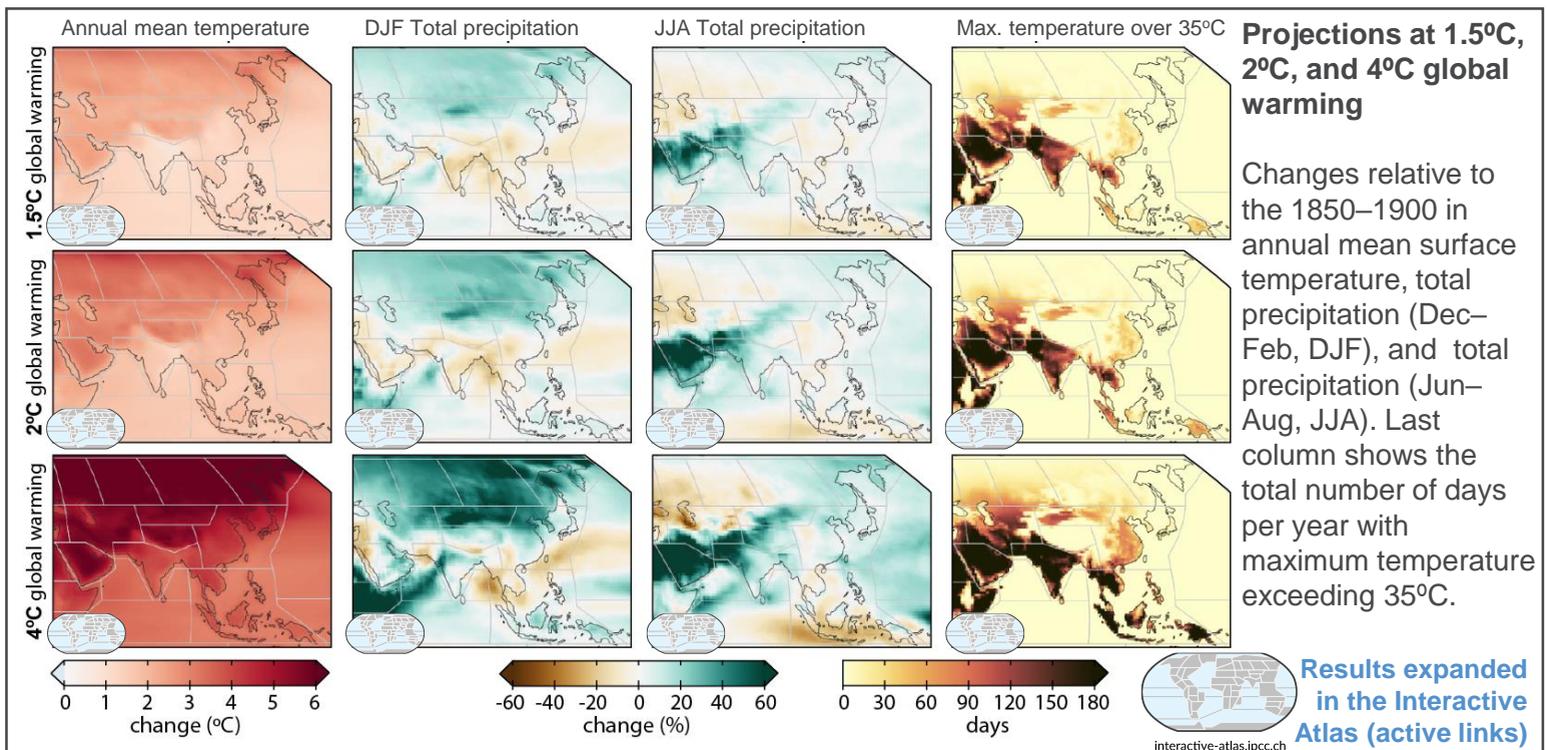


Regional fact sheet - Asia

Common regional changes

-  The **observed** mean surface temperature increase **has clearly emerged** out of the range of internal variability compared to 1850-1900. Heat extremes **have increased** while cold extremes **have decreased**, and these trends **will continue** over the coming decades (*high confidence*).
-  Marine heatwaves **will continue** to increase (*high confidence*).
-  Fire weather seasons **will lengthen** and intensify, particularly in North Asia regions (*medium confidence*).
-  Average and heavy precipitation **will increase** over much of Asia (*high to medium confidence*).
-  Mean surface wind speeds **have decreased** (*high confidence*) and will continue to **decrease** in central and northern parts of Asia (*medium confidence*).
-  Glaciers **are declining** and permafrost **is thawing**. Seasonal snow duration, glacial mass, and permafrost area **will decline** further by the mid-21st century (*high confidence*).
-  Glacier runoff in the Asian high mountains **will increase** up to mid-21st century (*medium confidence*), and subsequently runoff may decrease due to the loss of glacier storage.
-  Relative sea level around Asia **has increased** faster than global average, with coastal area loss and shoreline retreat. Regional-mean sea level **will continue** to rise (*high confidence*).



Asian Monsoons

- The South and Southeast Asian monsoon **has weakened** in the second half of the 20th century (*high confidence*). The **dominant cause** of the **observed** decrease of South and Southeast Asian monsoon precipitation since mid-20th century is anthropogenic aerosol forcing.
- The dry-north and wet-south pattern of East Asian summer monsoon precipitation change **results from** the combined effects of greenhouse gases and aerosols (*high confidence*).
- In the near-term, South and Southeast Asian monsoon and East Asian summer monsoon precipitation **will be dominated** by the effects of internal variability (*medium confidence*).
- In the long-term, South and Southeast Asian monsoon and East Asian summer monsoon precipitation **will increase** (*medium confidence*).

Common change: TS.4.3.1, TS.4.3.2.2, Box 9.2; 9.5; 11.5.5; 12.4.2. **Asia monsoon:** 8.3.2.4, Box 8.1, 8.4.2.4, Box TS.13. **North Asia:** 2.3.2, 8.2, 8.3, 8.4, Table 11.7, Table 11.8, Table 11.9, 12.4.2, Table 12.4, Atlas.5.2, TS.4.3.2.2, TS Table 4, TS Table 5. **East Asia:** TS.4.3.2.2; 11.4; 11.7.1; Table 11.8; Table 11.9; 12.4.2; Atlas.5.1. **Tibetan Plateau:** CCB10.4, 11.4.5. **South Asia:** TS 4.3.2, 8.4.1, 11.3.2, 11.3.5, Table 11.5, 12.4.2, 12.5.2.1. Atlas 5.3.2, Atlas 5.3.5, Atlas 5.10. **Southeast Asia:** TS.4.3.2.2; 11.5.5; 11.7.1; 12.4.2; Atlas.5.4 **Southwest Asia:** 8.2, 8.3, 8.4, 9.5, Table 11.7, Table 11.8, Table 11.9, 12.4.2, Table 12.4, Atlas.5.5, TS.4.3.2.2, Table TS.4, Table TS.5

North Asia (WSB, ESB, RFE)

- Permafrost **has thawed**, its temperature **increased**, and seasonal snow duration and extent **decreased** while maximal snow depth **has increased** over the past 3 to 4 decades (*high confidence*). It is *virtually certain* that permafrost extent and volume **will shrink** with further global warming.
- Annual precipitation **has increased** since the mid-1970s (*very high confidence*) and rising heavy convective showers **caused** more intense floods (*medium confidence*). **Projected** increase in precipitation almost doubles the annual maximum river discharge with increased flooded area in major Siberian rivers by mid-21st century (*medium confidence*).
- The number of dry days **has decreased** for much of the region but increased in southwestern parts, where total soil moisture **will decline** and the fire season **will lengthen** (*medium confidence*).

Southwest Asia (WCA, ARP)

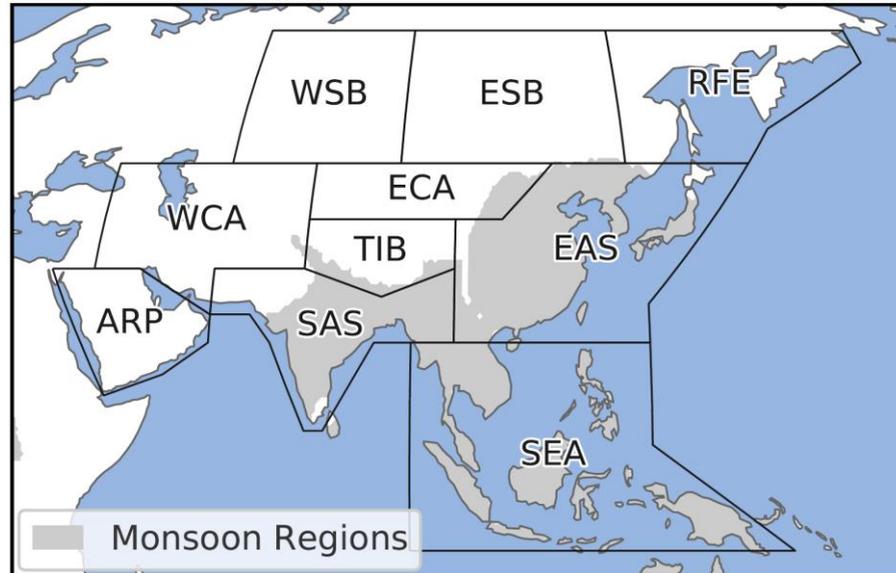
- Anthropogenic warming **has amplified** droughts since the 1980s (*high confidence*). An increase in extreme precipitation has been **observed**, mostly in elevated areas.
- Mountain permafrost degradation at high altitudes **has increased** the instability of mountain slopes in the past decade (*medium confidence*). Reduction of the annual maximum amount of snow **increases** with elevation in mountain areas.
- Annual precipitation totals, intensity, and frequency of heavy precipitation **are projected to** increase with increasing warming levels. Strong spatiotemporal differences with overall decreasing precipitation **are projected** in summer with the opposite tendency in winter.

Tibetan Plateau (TIB)

- Over most of the Hindu Kush Himalayan region, snow cover **has reduced** since the early 21st century, and glaciers **have retreated** and lost mass since the 1970s. The Karakoram glaciers **have remained** either in a balanced state or **slightly gained** mass. During the 21st century, snow-covered areas and snow volumes **will decrease** in most of the Hindu Kush Himalayan, and snowline elevations **will rise** and glacier volumes **will decline** (*high confidence*).
- A general wetting across the whole Tibetan Plateau and the Himalaya **is projected**, with increases in heavy precipitation in the 21st century.

South Asia (SAS)

- Heatwaves and humid heat stress **will be** more intense and frequent during the 21st century (*medium confidence*).
- Both annual and summer monsoon precipitation **will increase** during the 21st century, with enhanced interannual variability (*medium confidence*).

**East Asia (EAS, ECA)**

- Daily precipitation extremes **have increased** over parts of the region (*high confidence*). Heavy precipitation **will increase in frequency and intensity** (*high confidence*), leading to more frequent landslides in some mountain areas.
- Droughts **have become** more frequent in much of continental East Asia while arid Eastern Central Asia **has become** wetter (*medium confidence*).
- The rate of intensification and number of strong tropical cyclones **have increased** (*medium confidence*), and tropical cyclone tracks *likely* migrated poleward.

Southeast Asia (SEA)

- Future warming **will be** slightly less than the global average (*high confidence*).
- Observed mean rainfall trends are not spatially coherent or consistent across datasets and seasons (*high confidence*). Rainfall **will increase** in northern parts and decrease in the Maritime Continent (*medium confidence*).
- Compound impacts of climate change, land subsidence, and local human activities **will lead** to higher flood levels and prolonged inundation in the Mekong Delta (*high confidence*).
- Although there has been no significant long-term trend in the overall number of tropical cyclones, fewer but more extreme tropical cyclones **have affected** the region.