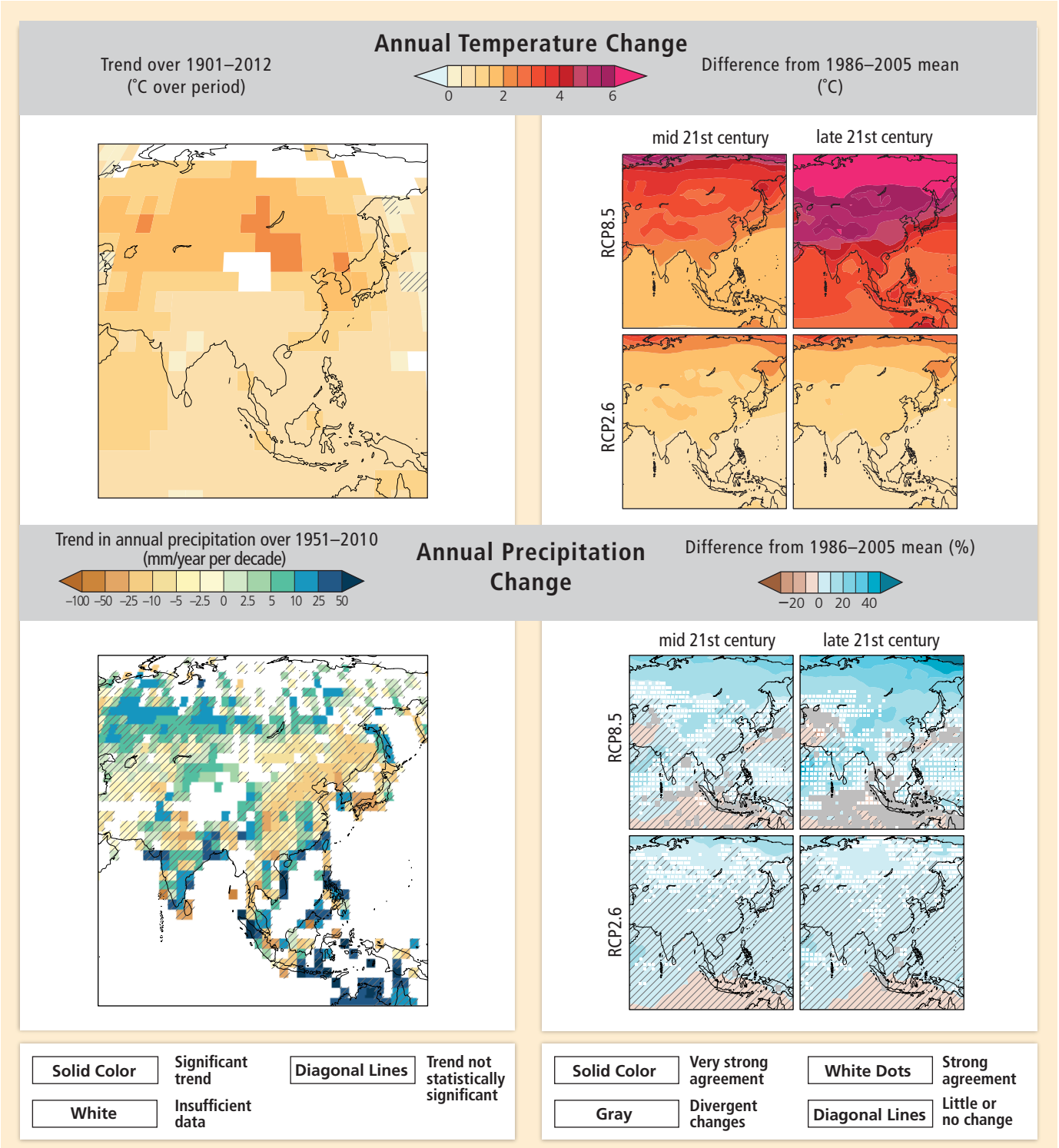

Observed and projected changes in annual average temperature and precipitation. (Top panel, left) Observed temperature change from 1901–2012. (Bottom panel, left) Observed precipitation change from 1951–2010. (Top and bottom panel, right) Projected temperature and precipitation changes for 2046–2065 and 2081–2100 under RCP2.6 and 8.5, relative to 1986–2005. [WGII AR5 Figure 24-2]

Key regional risks from climate change in Asia and the potential for reducing risk through mitigation and adaptation. Key risks result from high hazard, high vulnerability, and/or high exposure. They are identified based on assessment of the literature and expert judgments. Risk levels are estimated through the 21st century for the current state of adaptation and for a hypothetical highly adapted state. [WGII AR5 Table 24-1]

Climate-related drivers of impacts

Warming trend | Extreme temperature | Extreme precipitation | Drying trend | Damaging cyclone | Sea level | Ocean acidification

Level of risk & potential for adaptation

Potential for additional adaptation to reduce risk

Risk level with **high** adaptation | Risk level with **current** adaptation

Key risk	Adaptation issues & prospects	Climatic drivers	Timeframe	Risk & potential for adaptation (Very low – Medium – Very high)
Increased risk of crop failure and lower crop production could lead to food insecurity in Asia (*medium confidence*) [24.4.4]	Autonomous adaptation of farmers on-going in many parts of Asia.		Present Near term (2030-2040) Long term (2080–2100) 2°C / 4°C	
Water shortage in arid areas of Asia (*medium confidence*) [24.4.1.3, 24.4.1.4]	Limited capacity for water resource adaptation; options include developing water saving technology, changing drought-resilient crops, building more water reservoirs.		Present Near term (2030–2040) Long term (2080–2100) 2°C / 4°C	
Increased riverine, coastal, and urban flooding leading to widespread damage to infrastructure, livelihoods, and settlements in Asia (*medium confidence*) [24.4]	• Exposure reduction via structural and non-structural measures, effective land-use planning, and selective relocation • Reduction in the vulnerability of lifeline infrastructure and services (e.g., water, energy, waste management, food, biomass, mobility, local ecosystems, telecommunications) • Construction of monitoring and early warning systems; Measures to identify exposed areas, assist vulnerable areas and households, and diversify livelihoods • Economic diversification		Present Near term (2030–2040) Long-term (2080–2100) 2°C / 4°C	
Increased risk of flood-related deaths, injuries, infectious diseases and mental disorders (*medium confidence*) [24.4.6.2, 24.4.6.3, 24.4.6.5]	Disaster preparedness including early-warning systems and local coping strategies.		Present Near term (2030–2040) Long term (2080–2100) 2°C / 4°C	
Increased risk of heat-related mortality (*high confidence*) [24.4]	• Heat health warning systems • Urban planning to reduce heat islands; Improvement of the built environment; Development of sustainable cities • New work practices to avoid heat stress among outdoor workers		Present Near term (2030–2040) Long term (2080–2100) 2°C / 4°C	
Increased risk of drought-related water and food shortage causing malnutrition (*high confidence*) [24.4]	• Disaster preparedness including early-warning systems and local coping strategies • Adaptive/integrated water resource management • Water infrastructure and reservoir development • Diversification of water sources including water re-use • More efficient use of water (e.g., improved agricultural practices, irrigation management, and resilient agriculture)		Present Near term (2030–2040) Long term (2080–2100) 2°C / 4°C	
Increased risk of water and vector-borne diseases (*medium confidence*) [24.4.6.2, 24.4.6.3, 24.4.6.5]	Early-warning systems, vector control programs, water management and sanitation programs.		Present Near term (2030–2040) Long term (2080–2100) 2°C / 4°C	
Exacerbated poverty, inequalities and new vulnerabilities (*high confidence*) [24.4.5, 24.4.6]	Insufficient emphasis and limited understanding on urban poverty, interaction between livelihoods, poverty and climate change.		Present Near term (2030–2040) Long term (2080–2100) 2°C / 4°C	
Coral reef decline in Asia (*high confidence*) [24.4.3.3, 24.4.3.5, CC-CR, CC-OA]	The limited adaptation options include minimizing additional stresses in marine protected areas sited where sea surface temperatures are expected to change least and reef resilience is expected to be highest.		Present Near term (2030–2040) Long term (2080–2100) 2°C / 4°C	
Mountain-top extinctions in Asia (*high confidence*) [24.4.2.4, 24.4.2.5]	Adaptation options are limited. Reducing non-climate impacts and maximizing habitat connectivity will reduce risks to some extent, while assisted migration may be practical for some species.		Present Near term (2030–2040) Long term (2080–2100) 2°C / 4°C	

photo: Maeslant storm surge barrier in Rotterdam, Netherlands. © Asahi Shimbun / Getty Images