

#SROCC

The Ocean and Cryosphere in a Changing Climate

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Outreach Event in Kuala Lumpur



ipcc
INTERGOVERNMENTAL PANEL ON climate change



**The world's ocean and cryosphere have been
'taking the heat' from climate change for decades.**

**Consequences for nature and humanity are
sweeping and severe.**



**High
Mountains**



**Polar
Regions**



**Ocean &
Marine Life**

Photo: Mr. JK



**Sea
Level Rise**



Photo: Glenn R. Specht

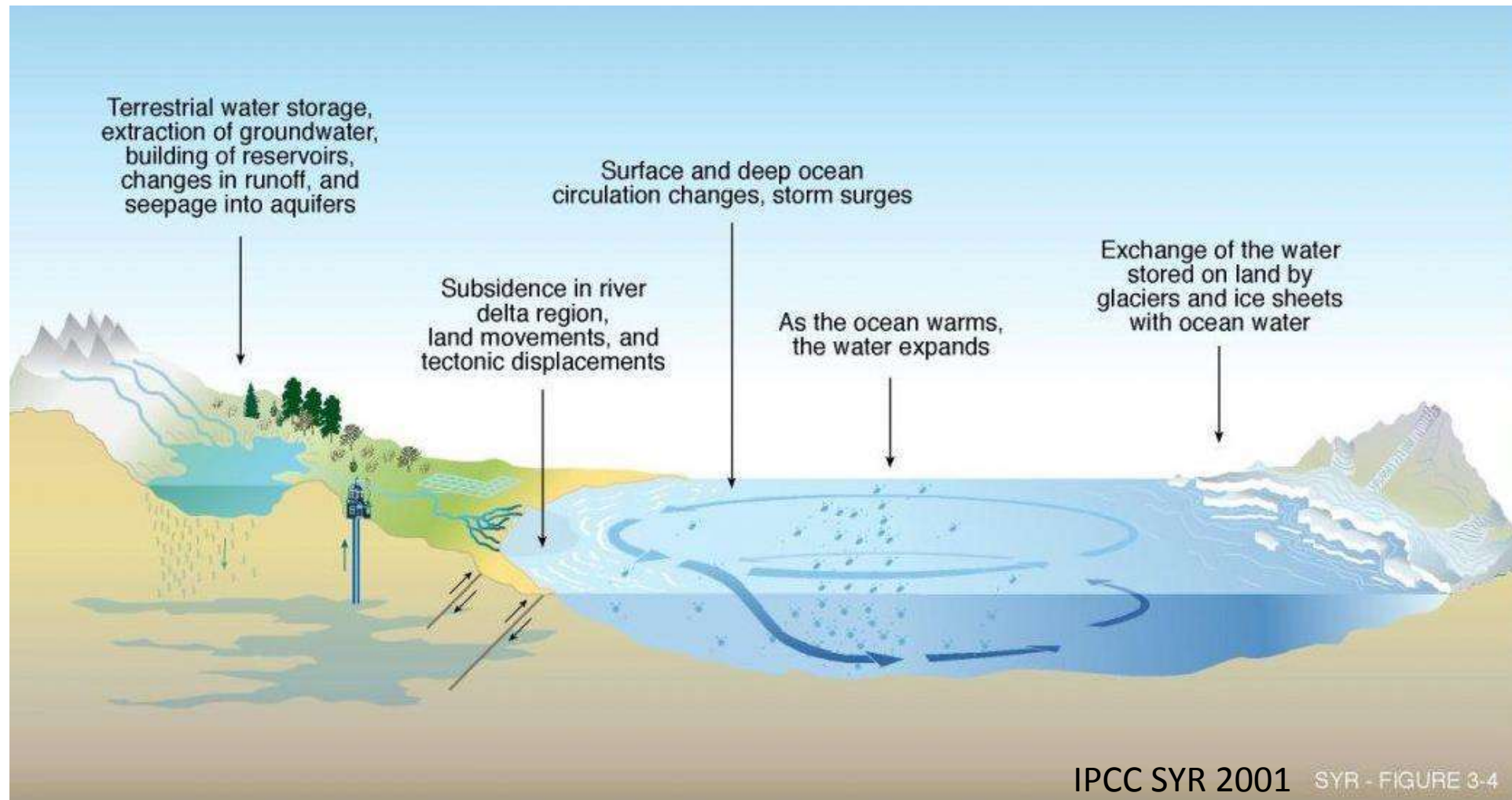
Sea Level Rise



Key findings relevant to Sea Level Rise

- **Greenland and Antarctic ice sheets are melting**, and are now the major cause of accelerating global sea level rise, outpacing sea level rise caused by ocean thermal expansion.
- During the 20th century, the **global mean sea level** rose by about 15cm. Sea level is currently rising more than twice as fast and continuing to accelerate.
- **Marine heatwaves** have doubled in frequency since the 1980s and have become longer-lasting, more intense and more extensive, especially harming warm-water corals, kelp forests and the distribution of marine life.

Sea level changes for several reasons



Historical values

- Global mean sea-level rise, over the period 1902–2015, is 0.16 m (*likely* range 0.12–0.21 m). The rate of rise is unprecedented over the last century (*high confidence*).
- The sum of ice sheet and glacier contributions over the period 2006–2015 is the dominant source of sea-level rise, exceeding the thermal effect.
- The dominant cause of global mean sea level rise since 1970 is anthropogenic (human) forcing (*high confidence*).

Current Status

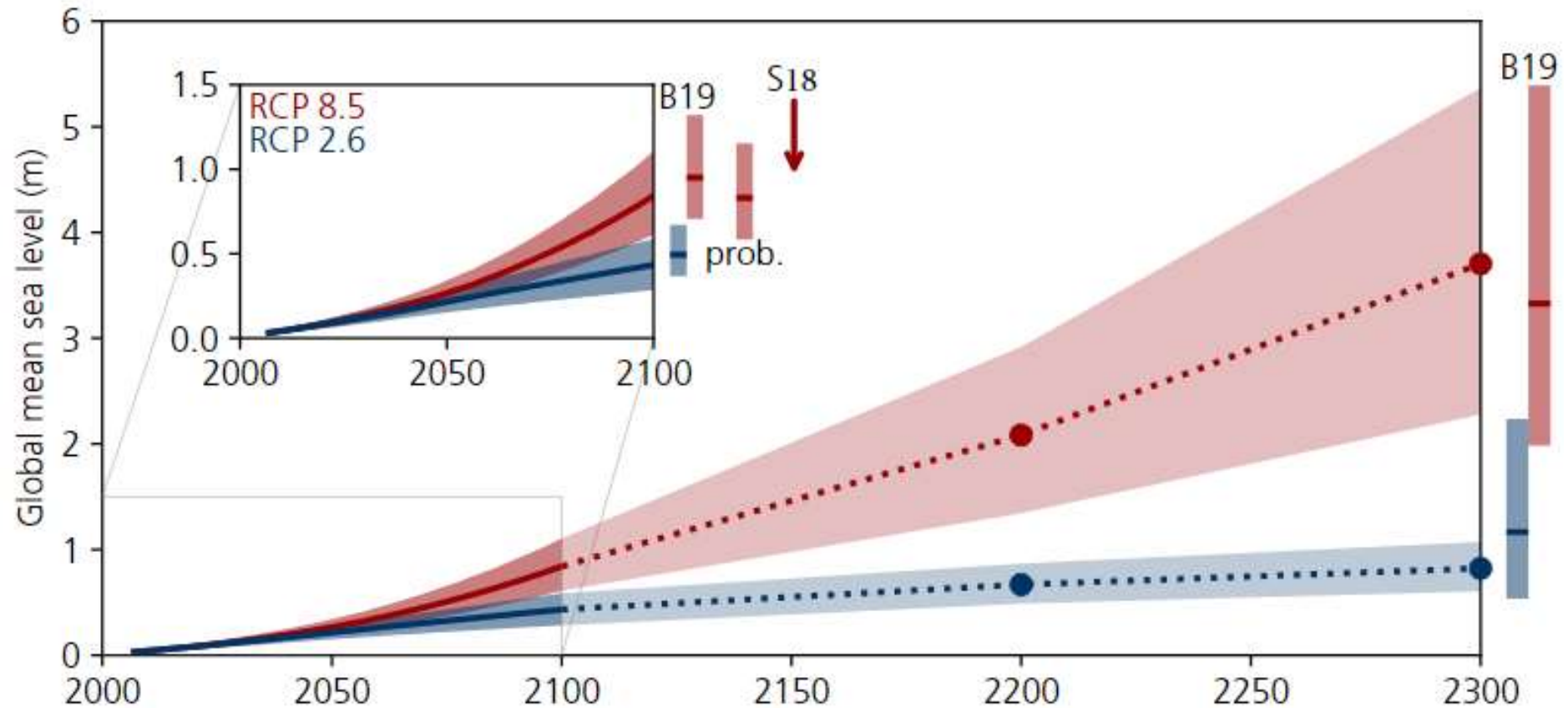
- Sea-level rise has accelerated (*extremely likely*) due to increased ice loss from the Greenland and Antarctic ice sheets (*very high confidence*).
- Mass loss from the Antarctic ice sheet over the period 2007– 2016 tripled relative to 1997–2006. For Greenland, mass loss doubled over the same period (*likely, medium confidence*).
- Acceleration of ice flow and retreat in Antarctica, which has the potential to lead to sea-level rise of several metres within a few centuries, is observed in some locations of Antarctica (*very high confidence*).

Response options

- Various adaptation approaches are already being implemented, including:
 - protection
 - accommodation
 - ecosystem-based adaptation
 - coastal advance
 - managed relocation
- People with the highest exposure and vulnerability are often those with the lowest capacity to respond.

In the longer term, choices matter

Although ongoing sea-level rise is inevitable, ambitious mitigation will have a profound effect on the rate and ultimate magnitude of sea-level rise.





Knowledge for action

The IPCC Special Report on the Ocean and Cryosphere in a Changing Climate

- highlights **the urgency** of prioritizing **timely, ambitious and coordinated action** to address **widespread and enduring changes** in the ocean and cryosphere;
- empowers people, communities and governments to tackle the unprecedented transitions in all aspects of society;
- provides evidence of the benefits of combining scientific with local and indigenous knowledge.

The more decisively and earlier we act, the more able we will be to address unavoidable changes, manage risks, improve our lives and achieve sustainability for ecosystems and people around the world – today and in the future.



Our ocean and cryosphere –

They sustain us.

They are under pressure.

Their changes affect all our lives.

The time for action is now.

More Information:

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