



# IPCC sixth assessment cycle: Key findings from the Special Reports and progress towards AR6 WGIII Mitigation Report

Toward Decarbonized Society from Low Carbon Society  
Tokyo, Japan  
20 November 2019

Priyadarshi Shukla, Co-Chair, IPCC WG III  
Chair and Distinguished Professor  
Global Centre for Environment and Energy  
Ahmedabad University (India)

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# Sixth Assessment Cycle (AR6)

## 3 Special Reports

Global Warming of 1.5 °C  
(SR15)

October 2018

UNFCCC COP24 - Talanoa (facilitative) dialogue

Climate Change and Land  
(SRCCL)

August 2019

Ocean and Cryosphere  
(SROCC)

September 2019

## Methodology Report update

**May 2019:** 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

## Cities

Attention on cities in AR6:  
Cities conference and special report on cities in AR7  
Cities Research & Action Agenda

## AR6 Main Report

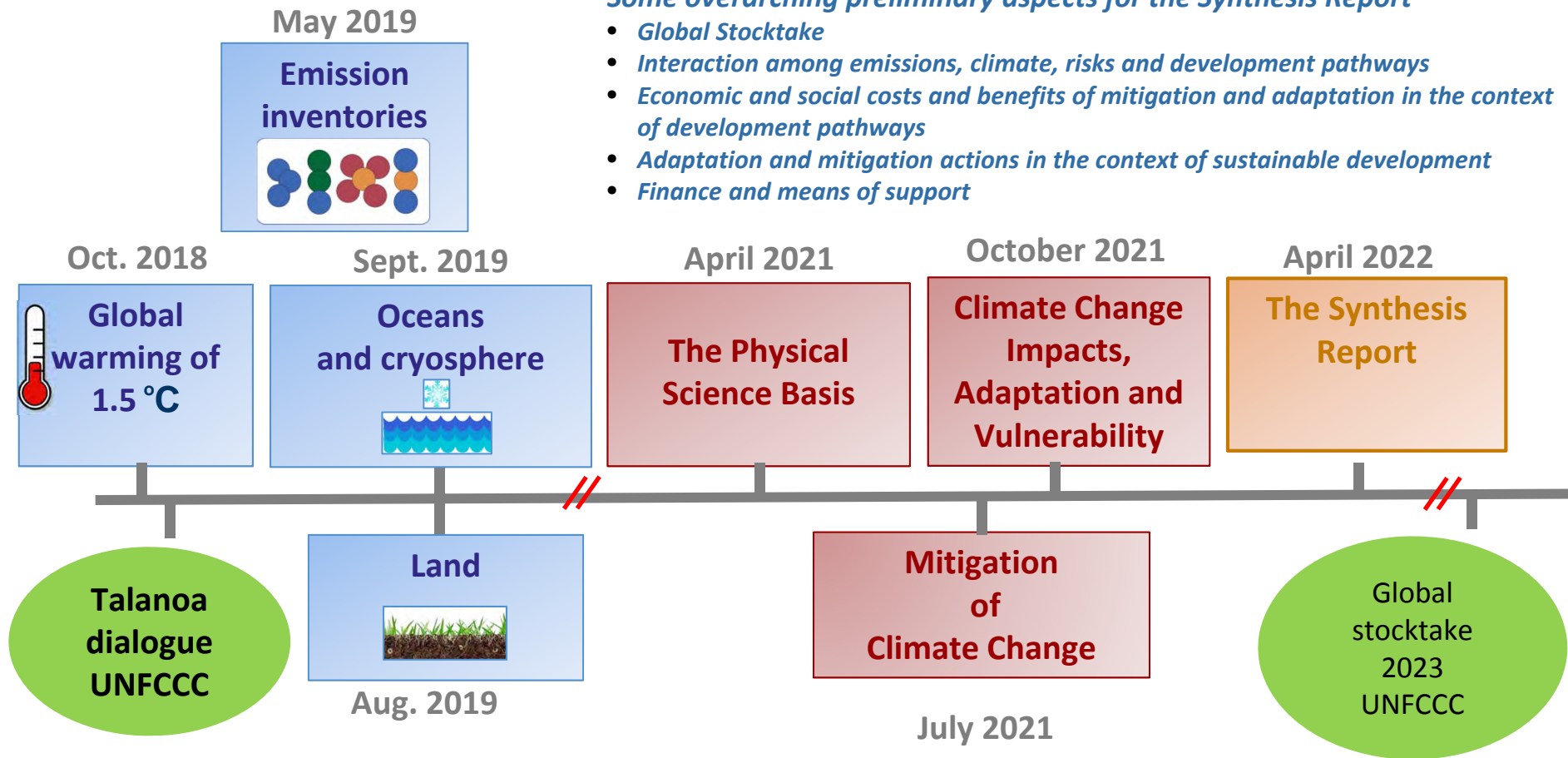
**2021:** Working Group I, II, and III contribution to the Sixth Assessment Report  
**April 2022:** Synthesis Report to the Sixth Assessment Report



UNFCCC global stocktake 2023

# IPCC Sixth Assessment (AR6)

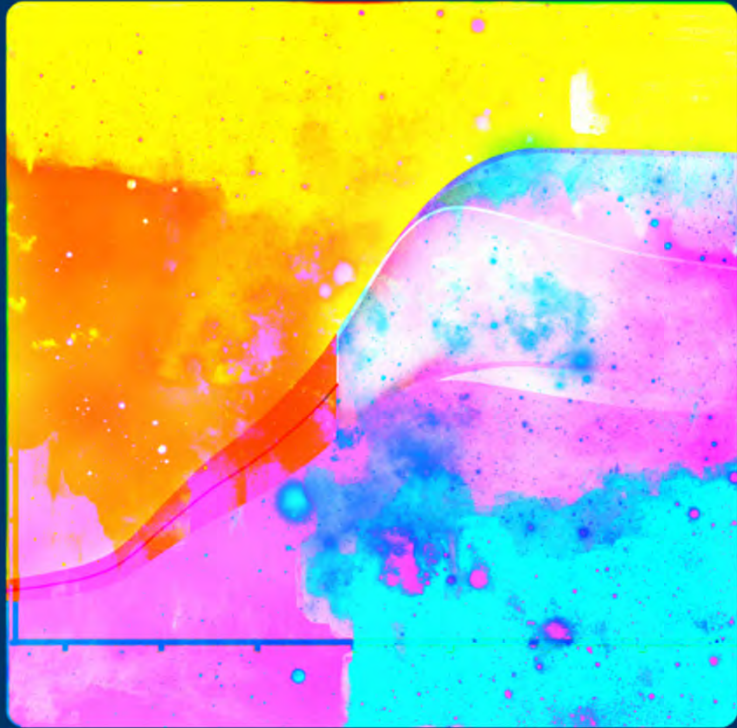
*Some overarching preliminary aspects for the Synthesis Report*

- *Global Stocktake*
- *Interaction among emissions, climate, risks and development pathways*
- *Economic and social costs and benefits of mitigation and adaptation in the context of development pathways*
- *Adaptation and mitigation actions in the context of sustainable development*
- *Finance and means of support*



- March 2018  Cities and Climate Change Science Conference
- May 2018  Expert Meeting on Assessing Climate Information for Regions
- May 2018  Expert Meeting on Short Lived Climate Forcers

*\* Dates are subject to change*



# IPCC Special Report on Global Warming of 1.5°C

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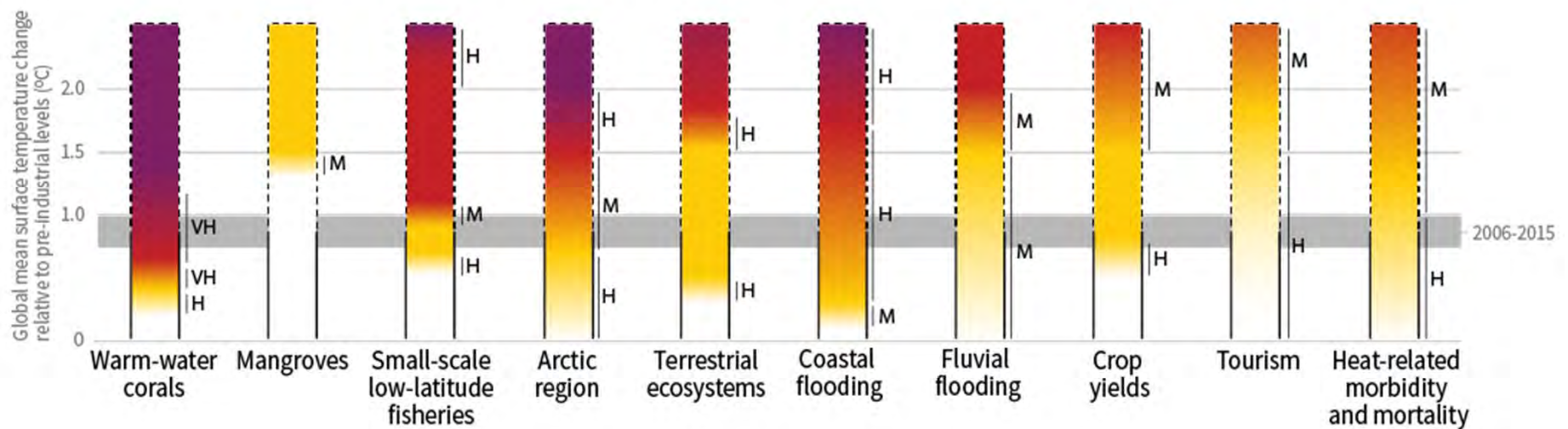




# SPM2

How the level of global warming affects impacts and/or risks associated with the Reasons for Concern (RFCs) and selected natural, managed and human systems

## Impacts and risks for selected natural, managed and human systems



Confidence level for transition: L=Low, M=Medium, H=High and VH=Very high



# IAMC 1.5°C Scenario Explorer hosted by IIASA

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This Scenario Explorer presents an ensemble of quantitative, model-based climate change mitigation pathways underpinning the *Special Report on Global Warming of 1.5°C (SR1.5)* by the Intergovernmental Panel on Climate Change's (IPCC) 2018.

## Copyright and License

The scenario ensemble is made publicly available to ensure reproducibility and transparency with respect to the scenario set that has been assessed in SR1.5. The Scenario Explorer allows for the re-use of scenario data by other research communities, under a derivative of the Creative Commons Attribution 4.0 License. Please read the guidance note and the license terms on the [License](#) page before downloading data or figures.

## Background of the Scenario Explorer



IPCC Special Report on Global Warming of 1.5°C

As part of the IPCC's *Special Report on Global Warming of 1.5°C (SR1.5)*, an assessment of quantitative, model-based climate change mitigation pathways was conducted. To support the assessment, the Integrated Assessment Modeling Consortium (IAMC) facilitated a coordinated and systematic community effort by [inviting modelling teams to submit their available 1.5°C and related scenarios](#) to a curated database. The compilation and assessment of the scenario ensemble was conducted by authors of the IPCC SR1.5, and the resource is hosted by the International Institute for Applied Systems Analysis (IIASA) as part of a [cooperation agreement with Working Group III of the IPCC](#).

The scenario ensemble contains more than 400 emissions pathways with underlying socio-economic development, energy system transformations and land use change until the end of the century, submitted by over a dozen research teams from around the world. The criteria for submission included that the scenario is presented in a peer-reviewed journal accepted for publication no later than May 15, 2018, or published in a report determined by the IPCC to be eligible grey literature by the same date.

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





High  
Mountains



Polar  
Regions



Ocean &  
Marine Life

Photo: Mr. JK



Sea  
Level Rise



**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.**

# Key findings

- **Choices made now are critical for the future of our ocean and cryosphere**
- **Major changes in high mountains affecting downstream communities**
- **Melting ice, rising seas**
- **More frequent extreme sea level events**
- **Changing ocean ecosystems**
- **Declining Arctic sea ice, thawing permafrost**

# Adaptation approaches

- **Protection**
- **Accommodation**
- **Ecosystem-based adaptation**
- **Coastal advance**
- **Managed relocation**





**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.**

# CLIMATE CHANGE AND LAND

An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems.

REPORT COVER IMAGE:  
Agricultural landscape between Ankara and Hattusha, Anatolia, Turkey (40°00' N – 33°35' E)  
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# Climate Change and Land

An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems

Summary for Policymakers



WG I × WG II × WG III



# How we use land now?







## Land and Climate change

- Climate change exacerbates land degradation
- Land degradation is a driver of climate change through emissions of GHGs and reduced uptake of carbon
- Gross emissions from AFOLU make up **1/3 of total global emissions.**
- Land accounts for **61% of anthropogenic methane** emissions.
- **50% of the nitrogen applied** to agricultural land is **not taken up** by the crop, resulting in nitrous oxide emissions.

# Response Options for the food system



- **Sustainable production**
- **Consumption of healthy and sustainable diet**
- **Reducing food loss and waste**





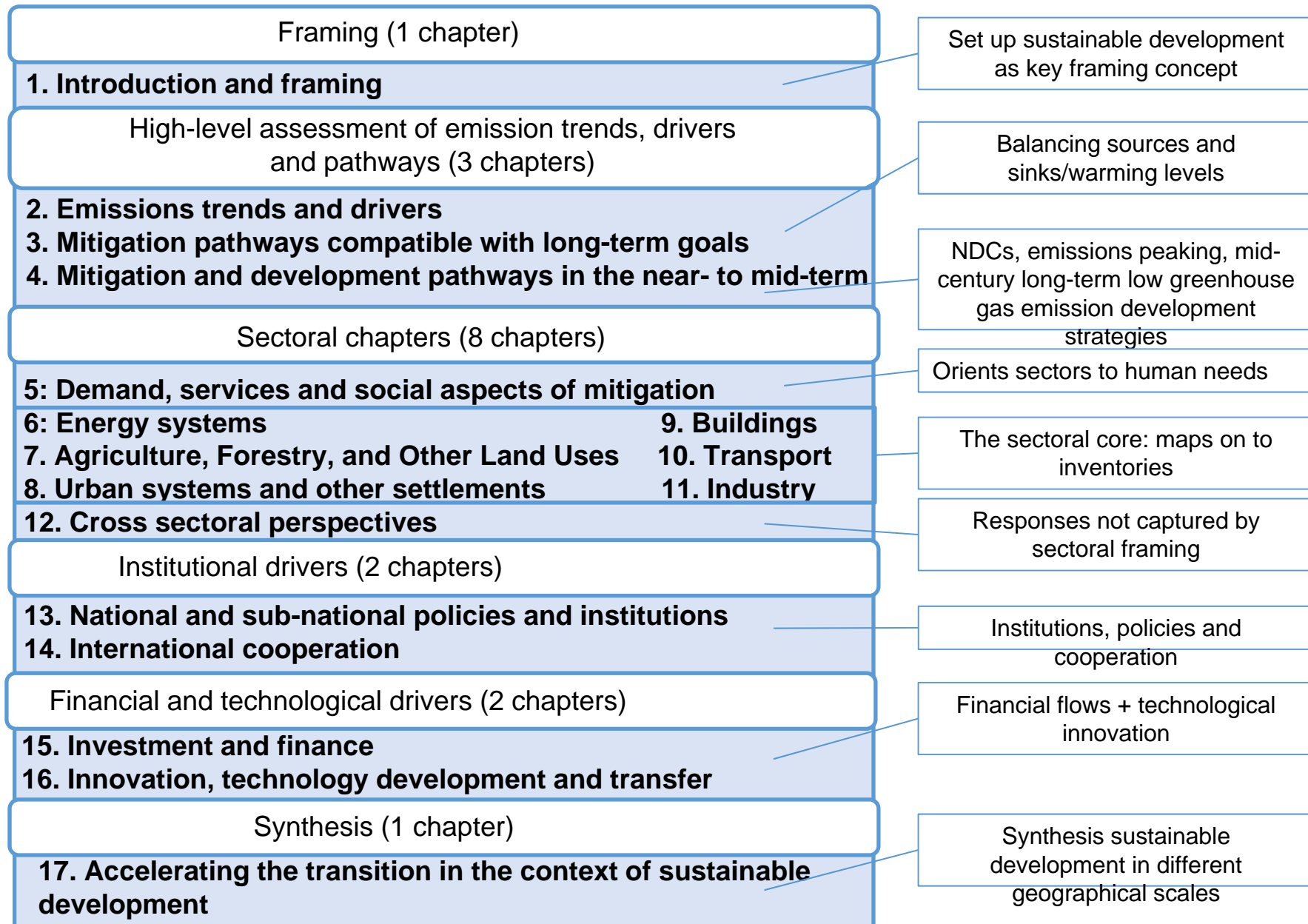
# **IPCC WGIII Contributions to AR6**



# Government questionnaire: priority topics for WG III

- Policy relevant information on the Paris Agreement goals (well below 2°C, efforts to achieve 1.5°C, climate neutrality); anticipate the global stocktake; **transformation pathways to meet 2°C and 1.5°C; social + financial + technological + sectoral + regional implications of pathways**
- **Geo-engineering**, including limits, negative emissions
- The role of **short-lived climate pollutants** and other benefits
- Options for **decarbonization pathways**, including solutions from business
- **Links between climate change and SDGs**
- Technological, economic, social, and institutional **barriers to realizing mitigation targets and benefits from carbon offset mechanisms**
- **Opportunities, challenges, barriers and co-benefits** of climate change mitigation policies and measures
- **Impacts on land-use change**, including ecosystem restoration, biodiversity and ecosystem functions and services

# Outline of WG III AR6



# Challenges for AR6

- To assess the **linkages between high-level climate stabilization goals and scenarios** on the one hand **and the practical steps needed in the short- and medium-term** to make the realisation of these goals possible
- To make **greater use of social science disciplines**, in addition to economics, especially for gaining insight into issues related to **lifestyle, behaviour, consumption, technological choices and socio-technical transitions**.
- To link **climate change mitigation better to other agreed policy goals nationally and internationally** (e.g. the Sustainable Development Goals - SDGs).



# Timeline for WGIII contribution to AR6

2020

**JAN** 13 Jan-8 Mar  
Expert Review of First Order Draft

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**APR** 15-19 Apr  
Third Lead Author Meeting (LAM3), Quito, Ecuador

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**JUN** 15 Jun  
Literature deadline: cut-off date for submitted papers  
Literature for consideration by report authors must be submitted to publishers by this date

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**OCT** 25-31 Oct  
Fourth Lead Author Meeting (LAM4), Location TBC

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**JAN** 19 Jan  
Literature deadline: cut-off date for accepted papers  
Literature for consideration by report authors must be accepted for publication by this date

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2021

**JUL** 9-10 Jul  
SPM Meeting, Location TBC

12-16 Jul  
Approval Plenary, Location TBC

# THANK YOU FOR YOUR ATTENTION!

## For more information:

Website: <http://ipcc.ch/>

IPCC Secretariat: [ipcc-sec@wmo.int](mailto:ipcc-sec@wmo.int)

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