



## Climate science resources for journalists and media

CMCC topics, spokespeople and story ideas

Climate sciences provide vital information and data for journalists, especially when applied to specific socio-economic sectors.

[CMCC](#) is a leading research centre with international expertise and experience in coordinating multidisciplinary research activities. With over twenty years of experience, [CMCC](#) has consolidated a holistic approach that integrates macro- and micro-economics, advanced Earth system modelling, and sectoral impact modelling and assessment.

Below is a list of topics, relevant experts, and story ideas for journalists who require reliable, up-to-date scientific data and information.

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## 1. Water Resilience and Climate Change Impacts on Agriculture

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**Spokespeople:** Giulio Boccaletti, Guido Rianna, Jaroslav Mysiak, Andrea Critto, Marta Debolini, Valentina Mereu, Antonio Trabucco, Donatella Spano

**Content Areas:** Water management, water security, droughts, flooding interaction, water policies, water quality, food security, alternative farming practices and future scenarios for crop production

### Pitch

Water is where climate change becomes visible first. CMCC research shows how shifting precipitation, heat extremes, and growing competition for water are increasing both drought and flood risk across regions. Water resilience requires more than better forecasting: it depends on integrated governance and climate-informed decisions that connect water, food, energy, and ecosystems. CMCC research also shows that if the agricultural sector fails to adapt to shifting weather patterns, global food production could fall by 10% by mid-century and by as much as 25% by 2100, with extreme heat and reduced rainfall undermining crop yields even in technologically advanced farming regions. These findings underscore the direct link between water resilience, agricultural adaptation, and long-term food security. CMCC delivers decision-support tools that help regions anticipate drought and manage water allocation sustainably.

### Why It Matters

*Water stress threatens food security, economies, and ecosystems. CMCC provides actionable science for resilient water systems.*

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## 2. Net-Zero Technology and Carbon Removal

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**Spokespeople:** Soheil Shayegh, Massimo Tavoni, Johannes Emmerling, Cinzia Chiriaco, Riccardo Valentini

**Content Areas:** Negative emissions, removal of carbon, mitigation pathways, overshoot, decarbonisation strategies, and economics (e.g. renewable energy, carbon markets, electricity markets, energy systems, economic costs of transition)

### Pitch

Many net-zero strategies rely heavily on future carbon removal, but CMCC research shows that delaying emissions cuts greatly increases climate and economic risk. Carbon Dioxide Removal (CDR) refers to technologies and land-based approaches that physically remove CO<sub>2</sub> from the atmosphere and store it long-term (e.g., reforestation, direct air capture, bioenergy with carbon capture). CDR can support net zero, but it cannot replace immediate and deep emissions



reductions. Technologies and solutions for capturing carbon dioxide from the atmosphere become even more significant in the context of an overshoot—a pathway that suggests the global average temperature first exceeds a level of global warming, and then returns to or below that level over a period of time. In such a context, CDR is crucial for designing pathways to reduce emissions and the way back to a 1.5°C world.

CMCC researchers have also demonstrated that fair financing is a key enabler of decarbonisation: a 2024 study published in *Nature Energy*, led by CMCC economists, found that reducing the cost of capital for renewable energy in developing countries would make clean electricity more available, affordable, and equitably distributed—showing that the economics of the energy transition are as important as the technology. Separately, CMCC has contributed to modelling the decarbonisation of Italy’s power system, identifying cost-effective pathways that combine renewables with flexibility assets such as battery storage, hydrogen, and grid expansion.

### Why It Matters

*Credible net-zero strategies require technological and economic realism. CMCC provides the evidence base.*

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## 3. Nature, Land and Carbon Sinks

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**Spokespeople:** Riccardo Valentini, Maria Vincenza Chiriaco, Manuela Balzarolo

**Content Areas:** Ecosystem productivity, forests, food productivity, land use and its carbon balance, carbon farming and carbon markets, ocean carbon uptake, global datasets

### Pitch

Forests, soils, and the ocean absorb a significant share of human CO<sub>2</sub> emissions, but their capacity is weakening under climate stress. CMCC tracks how heat, drought, and land-use pressures reduce natural carbon sink performance. CMCC integrates global ecosystem productivity data into Earth system models to assess future carbon sink stability.

### Why It Matters

*Nature-based solutions are essential. CMCC defines the role of ecosystems in climate mitigation.*



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## 4. Ocean and Coastal Resilience

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**Spokespeople:** Giovanni Coppini, Simona Masina (modelling), Silvia Torresan, Elisa Furlan

**Content Areas:** Coastal hazards, storm surge, Mediterranean flooding, ocean–coast interactions, multi-risk assessment at the land-sea interface, nature-based solutions, adaptation pathways

### Pitch

Sea-level rise, storm surge, and compound coastal hazards are intensifying. CMCC research shows that Europe’s coasts are increasingly exposed and traditional engineering defences alone are no longer enough. This programme focuses on risk assessment, observation, forecasting, adaptation planning, and tailored solutions to manage complex environmental and socio-economic challenges in coastal areas—including pollution, urbanisation, climate change, natural hazards, storm surges, tropical and extratropical cyclones, sea level rise, salt intrusion, and coastal erosion. Mediterranean flooding analyses reveal shifting seasonal patterns, guiding long-term coastal planning.

### Why It Matters

*Protecting coasts requires anticipatory action. CMCC provides science to inform resilient coastal strategies.*

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## 5. UNFCCC and IPCC Science for Policy

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**Spokespeople:** Anna Pirani, IPCC AR7 CMCC authors (Massimo Tavoni, Soheil Shayegh, Shouro Dasgupta)

**Content Areas:** Global governance, IPCC reports, CMCC role as Italy’s focal point for the IPCC

### Pitch

Global climate negotiations rely on trusted science. Since its establishment, CMCC has contributed to international climate negotiations by participating in UNFCCC sessions, including COPs, as experts in the EU negotiating delegations. CMCC scientists are authors of the IPCC Assessment Reports and Special Reports, and they contribute to the global community that produces IPCC scenarios using climate models. CMCC serves as IPCC Focal Point for Italy, helping produce and communicate assessments that guide climate policy.

UNFCCC = United Nations Framework Convention on Climate Change

IPCC = Intergovernmental Panel on Climate Change



## Why It Matters

*Effective climate governance requires credible, independent scientific input—CMCC strengthens that interface.*

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## 6. Extreme Precipitation and Storms

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**Spokespeople:** Enrico Scoccimarro, Silvio Gualdi

**Content Areas:** Hurricanes, medicanes, heavy rainfall, extreme precipitation, extreme events in Europe

### Pitch

A warmer atmosphere holds more moisture, producing heavier rainfall and stronger storms. Medicanes (Mediterranean hurricanes) are tropical-like cyclones that form in the Mediterranean Sea. They are becoming more intense as the region warms. The CMCC produces high-resolution data and analyses to describe and understand extreme precipitation events, their causes, and the expected trends over the coming decades according to different climate scenarios. CMCC models improve understanding of medicanes and short-duration, high-intensity rainfall that drives flash flooding.

### Why It Matters

*Extreme precipitation is a major cause of damage and disruption. CMCC advances forecasting and preparedness.*

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## 7. Wildfires and Forest Risk

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**Spokespeople:** Cinzia Chiriaco, Costantino Sirca, Donatella Spano

**Content Areas:** Wildfire scenarios, prevention, forest management

### Pitch

Climate change is making wildfires more frequent, intense, and difficult to control. CMCC research shows that hotter temperatures, drought, and land-use changes increase the likelihood of extreme fire behaviour and provides data to implement fire prevention measures and analyse the contribution of fires to GHG emissions in the context of a changing climate. CMCC develops future wildfire scenarios by combining climate projections with land-use data, identifying hotspots and prevention strategies.

### Why It Matters



*Prevention and long-term forest resilience are essential. CMCC provides science to reduce wildfire risks before ignition.*

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## 8. Marine Heatwaves and Ocean Modelling

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**Spokespeople:** Simona Masina

**Content Areas:** Marine heatwaves analyses and predictions, ocean predictions

### Pitch

Marine heatwaves, extended periods of unusually high ocean temperatures—are increasing in frequency, duration, and intensity. They threaten ecosystems, fish stocks, and coastal livelihoods. CMCC research has identified atmospheric and oceanic triggers that lead to Mediterranean marine heatwaves, improving prediction and early warning.

### Why It Matters

*Marine heatwaves are a fast-growing, often invisible threat. CMCC helps translate modelling into actionable early alerts.*

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## 9. Climate Indicators and Local Impacts

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**Spokespeople:** Paola Mercogliano, Silvia Torresan

**Content Areas:** Temperatures, heatwaves, precipitation indicators, Dataclime, city-scale impacts, regional multi-hazard risk assessment and climate adaptation strategies, resilience stress-testing

### Pitch

Record heat, extreme temperatures, and intense rainfall are key climate indicators that affect daily life. CMCC analyses translate global climate trends into local impacts, especially for cities. CMCC delivers detailed, high-resolution data and provides case-specific analyses and risk assessments related to climate at the local scale. Research on urban heat islands shows how built environments amplify heat stress and strain infrastructure.

### Why It Matters

*Clear, accessible indicators help communities anticipate risk and adapt effectively.*



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## 10. Health and Climate Change

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**Spokespeople:** Shouro Dasgupta, Lara Aleluia Reis

**Content Areas:** Heat and mortality, labour force, occupational health, food security, air quality, health risk projections, Lancet data, COP30 health insights

### Pitch

Climate change poses escalating risks to human health, including heat-related illness, respiratory problems from air pollution, and reduced labour productivity. CMCC projections of heat-related mortality help health systems plan for future warming.

### Why It Matters

*Framing climate change as a public health threat creates urgency and supports targeted protections for vulnerable populations.*

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## 11. Economic Impacts and Adaptation Costs

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**Spokespeople:** Giulio Boccaletti, Johannes Emmerling, Massimo Tavoni, Francesco Bosello

**Content Areas:** Climate damage, adaptation economics, ECCA adaptation costs, productivity impacts

### Pitch

Climate change is increasingly an economic risk. CMCC research quantifies the costs of inaction and shows that delaying adaptation dramatically increases long-term losses. CMCC is

a key player in many fora at the interface between science and policy, producing assessments of the costs of climate change impacts and adaptation on specific socio-economic sectors and on national economic systems. CMCC assessments show that investing early in climate adaptation reduces financial losses and protects long-term economic stability.

### Why It Matters

*Understanding climate change in financial terms supports smarter investment and policy decisions.*

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## 12. Social Impacts: Inequality, Migration, and Fair Transition

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**Spokespeople:** Anna Pirani, Shouro Dasgupta, Cristina Cattaneo, Enrica De Cian, Elisa Calliari

**Content Areas:** Inequality, migration, socioeconomic vulnerability, social cost modelling, loss and damage, equity in mitigation/adaptation, cooling solutions, fair transition frameworks

### Pitch

Climate extremes disproportionately impact vulnerable groups. CMCC research links rising temperatures and extreme events to inequality, displacement, and migration pressures. CMCC models identify regions where climate stress is most likely to trigger migration, helping shape equitable adaptation policies.

### Why It Matters

*Climate impacts are uneven. CMCC ensures that social vulnerability is central to policy discussions.*

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## 13. Urban Futures and Climate-Ready Cities

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**Spokespeople:** Paola Mercogliano, Veronica Casartelli

**Content Areas:** Urban heat islands, resilient infrastructure, planned relocation, urban scenarios

### Pitch

Cities face growing threats from heatwaves, flooding, and infrastructure stress. CMCC combines climate science with urban planning to design climate-ready cities. Planned relocation refers to moving people or assets out of high-risk zones when risks become unmanageable. CMCC research helps cities plan heat-resilient infrastructure and climate-informed urban development.

### Why It Matters

*Decisions made today will determine city livability for decades.*



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## 14. AI, Data and Predictive Technologies

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**Spokespeople:** Giulio Boccaletti, Paola Nassisi; also Silvia Torresan, Elisa Furlan (Multi-risk Intelligence for Transformative Adaptation)

**Content Areas:** Machine learning, climate data, predictive analytics, risk modelling

### Pitch

Artificial intelligence is rapidly transforming climate science. CMCC research shows how machine learning and advanced analytics can extract meaningful signals from massive climate datasets, improving prediction, risk modelling, and decision-support capabilities. CMCC develops next-generation AI tools that enhance climate projections, refine impact assessments, and support real-time interpretation of complex data for policymakers and practitioners.

### Why It Matters

*Better data and sharper predictive tools lead to more informed, timely decisions—strengthening climate resilience across sectors.*

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## 15. Early Warning Systems, Climate Risk, and Systemic Resilience

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**Spokespeople:** Silvia Torresan, Jaroslav Mysiak

**Content Areas:** Climate risk, uncertainty, early warning systems, preparedness frameworks, systemic risks, AI, digital risk twins, remote sensing, multi-hazard assessment

### Pitch

Systemic risks—shaped by the interplay of natural, technological, and socio-economic systems—are amplified by climate change. CMCC research uses AI, digital risk twins, and remote sensing to improve multi-hazard assessment, inform decisions, and strengthen resilience across sectors and communities.

### Why It Matters

*Understanding and anticipating systemic risk is essential for effective climate preparedness. CMCC provides the tools and science to build resilience.*