UN SDSN GLOBAL CLIMATE HUB

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Global Earth Observation System of Systems to link Earth observation resources worldwide across

Biodiversity and ecosystem sustainability Disaster resilience Energy and mineral resources management Food security Infrastructure and transportation management Public health surveillance Sustainable urban development Water resources management





https://dashboards.sdgindex.org/downloads



MISSION

Recognizing the global climate crisis and the need for governments worldwide to take immediate decisive action to reduce the impact of climate change, the SDSN Global Climate Hub will provide *science-based advice* for combating the aggravating climate crisis and prevent further deterioration.

SDSN Global Climate Hub will use all extensive data, knowledge and technologies provided by experts in various fields to develop country-specific action plans to be adopted and reinforced by society.













In collaboration with national governments and respective SDSN National Hubs, we will *co-design national and sub-national pathways for the transition to a climate neutral and a climate resilient* world *and showcase results in terms of the 6 transformations for the transition to "The Future we Want"..*



Climate Data Platforms and Digital Applications



Mission

The Mission of the Unit is to aggregate, connect and visualize data relative to objectives of Climate Hub on:

- Inputs funding research (public/private)
- Outputs who is producing what
- Outcomes scientific knowledge/trends, data, technology (tools & services), policies
- Effects interdisciplinarity, networks
- Impacts links to SDGs, usage by non-academia

The Unit's goal is to Better understand the STI landscape for climate by:

- Monitor relevant research activities related at global scale
- Assess their impact on R&I ecosystem, economy and society
- Build a directory of who's who (people, organisations) relating with outcomes
- Monitor and enhance policies practices & uptake

Team



Supporting Projects

Collaborations



1947 2022 Association for Computing Machinery

Association for Computing Machinery ACM, the world's largest educational and scientific computing society, delivers resources that advance computing as a science and a profession.





HOW? The power of an operational AI-Driven data infrastructure



Starting from a SOLID base



Search Deposit Link Data sources

Home > Sustainable Development Goals

Science for UN Sustainable Development Goals

Laying the foundation for new approaches and solutions.

We have developed a classification scheme for UN Sustainable Development Goals, to view contributions of research towards complex challenges for humanity such as climate change, biodiversity loss, pollution and poverty reduction.



A collaboration with Athena RC, AURORA European University Alliance, and Swinburne University of Technology, Australia (pending)

SDSN Global Crimate Hub Science & Technology Observatory



Atmospheric Physics

Head Team



Mission

Climate model simulations, analyses, and methods combining multiple lines of evidence focused on improving understanding of human influence on a wider range of climate variables, including weather and climate extremes – IPCC Contributor

The Study of climate fluctuations in any period

The systemic study of the observations related to the upper layers of the atmosphere

The collation and processing of observations related to air pollution

Supporting projects



Collaborations



Climate & Energy Systems Modeling

Mission

The Climate Hub Unit focusing on Climate and Energy Systems modeling will use system dynamics and stochastic modelling techniques to develop decarbonization pathways of the energy system at the national level.

• Energy supply will be conducted by mapping power generation plants along with their associated fuel, including coal, oil, gas, renewables, bioenergy, nuclear and new zero carbon.

• Energy demand and use of different sectors such as transport, households, buildings and industry will be recorded along with their associated greenhouse gas (GHG) emissions.

• Various climate solutions, such as carbon pricing will be tested and their effect on GHG emissions and overall temperature will be calculated.

• Simulation of the scenarios providing detailed values for all relevant variables, along with the resulting temperature increase.

Team



Models

- Balmorel Energy-System model
- En-ROADS climate simulation model
- BayesPop
- MaGE
- CAPRI
- REMIND
- WITCH Model

MIT Climate Interactive

Collaborations



Climate Interactive creates and shares tools that drive effective and equitable climate action.



Supporting Projects

Island sustai	SEVENTH FRAMEWORK	0	SEVENTH FRAMEWORK
Identifying c	Modular Multi-use Dee Platform Harnessing a		Innovative Multi-purpose offshore platforms: planning, design and operation
Duration: Start date: 1 Ja	Mediterranean, Subtro and Maritime Resourc	A pan-Eu Renewab	Grant agreement ID: 288710
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Coordinated by the Insti	Budget: Overall € 6 726 623,82 - EU contribut	Prof. Pl	Budget: Overall€ 7 376 567,60 - EU contribution€ 5 483 411
2 partners (Research Athens University of Econom	20 partners	committee me	28 partners
Japan)	PLATAFORMA OCEANICA DE CANARIAS, Spain.	E Sulation.	Coordinated by: DANMARKS TEKNISKE UNIVERSITET, Denmark

Climate, Land Use, Water-Food-Energy-**Biodiversity** Nexus Modelina



Mission

Being aware of the interconnectedness and mutual causality of the climate system and land surface processes, and the overall relevance for the Water-Food-Energy Nexus, the Climate Hub Unit will consider in high detail the relevance of land use dynamics and changes in land use and water management on various scales, i.e., ranging from continental to the river basin scale.

Head

This Unit will combine knowledge of this complex and interdisciplinary system of systems with relevant technological, policy, and human behavioral modeling and datasets.

- System Dynamics Modelling is used to map detailed and extensive sector-specific data from major databases and scenario models for national level analysis of interlinkages and for the identification of Nexus hotspots, where resource interdependencies create vulnerabilities and threaten resource security.
- Trade-off analysis is conducted to identify best possible options. Economic sectors such as agriculture, industry, services, and households are modeled, and calculations include GDP, government, governance, finance and investments taking into account state of the art economic modeling. Environmental sectors include land, soil, water, energy, consumption and production patterns, waste and biodiversity, while GHG emissions are calculated from all sectors.

Supporting Projects

fut Research Future Steeri	The I initia comr Nexu clima publi	EIT Act	Inter Med IASON (Buc C C C C C C C C C C	Sou ses/	Find more a www.theya implementa 2009-2013 Budget: €6,	SEVENTI PRO Corral MED Coorr Marsa of Av Fund Innov	Erast EU prog SEI RE. PI,	REC Consultant	Net Car	Meditera Meditera Met SO	- a t s ii f r f f Bud	A ar DA	SIMF	DESII Comr DESIF concej Physic unders digitise analys Nation Develc Find mv Implem Budget	Na Integri and sa Europi Call (2	Low mor Urb	Holi Mar	Stre	BION Tran Durato Durato Durato Durato Durato Durato Durato Durato Durato	 Smat Desi Urba ERC for s	SEAwise: Shaping ecosystem based fisheries management (EBFM) Duration: 2021 - 2025 Budget: 6.000,000 (Horton 2020) Objective: Dravid a fully operational approach for European Ecosystem Based Fisheries Management based on persistent networks and co-designed innovation. This will be achieved by: 1. Orating and a European fisheries connections with social and ecological systems from scientists and calenderies: 2. Collecting data European fisheries connections with social and ecological systems to assess, sets, and achieves and co-designed investors and conduction states and cological systems to assess, sets, and achieves the adheditor: 1. Sensition grantificm models of fisheries (Instructions with social and ecological systems to assess, sets, and achieves to assess, sets, and achieves to assess, sets, and accological systems to assess, sets, and achieves to assess, sets, and achieves to assess sets, and achieves to assess, sets, and achieves to assess assessess assess assess assess assess assess asses
Sieeni	Steel Steel	<u>ا</u> م	Q co	ß		(2013		White and	Antho	pla	Bud						W4C Cor		Principal In A. Plataniot		execute EBFM policies across Europe; 4. Providing ready-for-uptake advice for EBFM for Mediterranean, western and northern European waters.

Models

- Global Climate Models (GCMs) Regional Climate Models (RCMs)
- E3ME-FTT
- OSeMOSYS
- MAGNET
- SWIM

Collaborations

MIT Climate Interactive



Climate Interactive creates and shares tools that drive effective and equitable climate action.

Food and Land Use







Mission

A global economic burden of climate change indicator

Climate change will have a huge impact on population health outcomes in terms of morbidity, mortality, and disability. Via direct and indirect impacts, the economic cost of climate change on human health will be substantial globally. To date, research has addressed the economic cost associated with the health impact of climate change remains fragmented and focuses on single country analysis. Develop an internally consistent summary measure of the economic burden of climate change regarding morbidity, disability, and mortality for physical and mental conditions.

Outcome: Single summary measure of economic burden of climate change for selected physical and mental conditions

Requirements:

- Review economic cost estimates of physical and mental conditions across different geographical scales
- Identify climate change risk factors for physical and mental conditions of interest (based on the WHO Environmental Burden of Disease Series)
- Estimate the disease burden resulting from a variety of climate
- change risk factors by region
- Attribute economic cost



Supporting Projects

Innovation Acceleration for Climate Neutrality and Resilience

Head

Team



Mission

To meet the EU's 2050 climate neutrality objective, transforming industries requires supporting the mass deployment of sustainable technologies. Not only should prioritize sustainable technology deployment, but it should also prioritize certain key industries where the biggest impact on climate change can be achieved. Not only incremental innovation will be required, but also disruptive or breakthrough technologies will be needed to accelerate the transition to a green economy and society.

For this reason, the Global Climate Hub (GCH) hosts the <u>EIT-Climate KIC Hub in Greece</u>, which acts as a knowledge and innovation community, working towards accelerating the transition to a zero-carbon, climate-resilient society. With the support of the European Institute of Innovation and Technology (EIT), the EIT Climate-KIC Hub brings together partners from the business sector, academia, and the public and non-profit sectors to create networks of expertise, through which innovative solutions can be developed, brought to market and scaled-up for impact.



Collaborations





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Just Transition: Policies, Finance, Labor Market









Supporting Projects



Collaborations



Team

Transformative Participatory Approaches: National Living Labs and Systems Innovation



Mission

At the heart of all Global Climate Hub (GCH) and its work lies people; those impacted by climate change as well as those charged with making crucial decisions in order to adapt to and mitigate against these impacts. With the GCH providing a focal point for the global community of climate actors, the Transformative and Participatory Approaches (TAPA) Unit bridges the gap between the models that drive the scientific outputs of the GCH and the national policy-shapers and decision-makers.

The TAPA unit works closely with stakeholders to ensure that the model outputs are not only representative of the local realities but that the proposed solutions and innovations (technological, social, financial and policy) are appropriate and fit for purpose within the local context. The systems dynamics approach adopted by the modelling activities of the GCH is mirrored in the participatory approaches of the TAPA unit which are based on System Innovation.

Supporting Projects



Team



Methodologies

- Transformative Living Labs
- System Innovation and Transition Management
- Innovation Pathways
- Foresight methods such as Backcasting
- key actions and policy recommendations

Global Climate Hub Stakeholder Platform and Living Lab Modeler Tool

The GCH will aim to achieve further stakeholder reach through the use of the **Living Lab Modeler**. The tool will serve to maintain communication between Living Lab members outside of the workshop setting, and facilitate ongoing interaction between the Living Lab members and the GCH team. Furthermore, the Living Lab Modeler will adopt online visualization tools with intuitive user interfaces will allow for the presentation of Living Lab outputs and enhance understanding of the various model interdependencies as well as support non-expert involvement in the modelling process; allowing for key stakeholders' perspectives to be embedded within the modeling process, and provide validation for outputs.

The **Climate Hub Stakeholder Platform** will also promote public awareness on climate change, inviting civil society to participate in both the discourse on these issues as well as the pursuit of innovative solutions to address the greatest global challenge of our time.

Education, Training, Upskilling and Reskilling





Team

Collaborations

Mission

The mission of the Unit "Education, Training, Upskilling and Re-skilling" of the Global Climate Hub (GCH) will be to support the green transition by educating and training people, building skills ecosystems, which will also be aligned with national, regional, local and sectoral green strategies. The educational programs will be delivered under six themes corresponding to the Six SDG Transformations namely:



Supporting Projects

