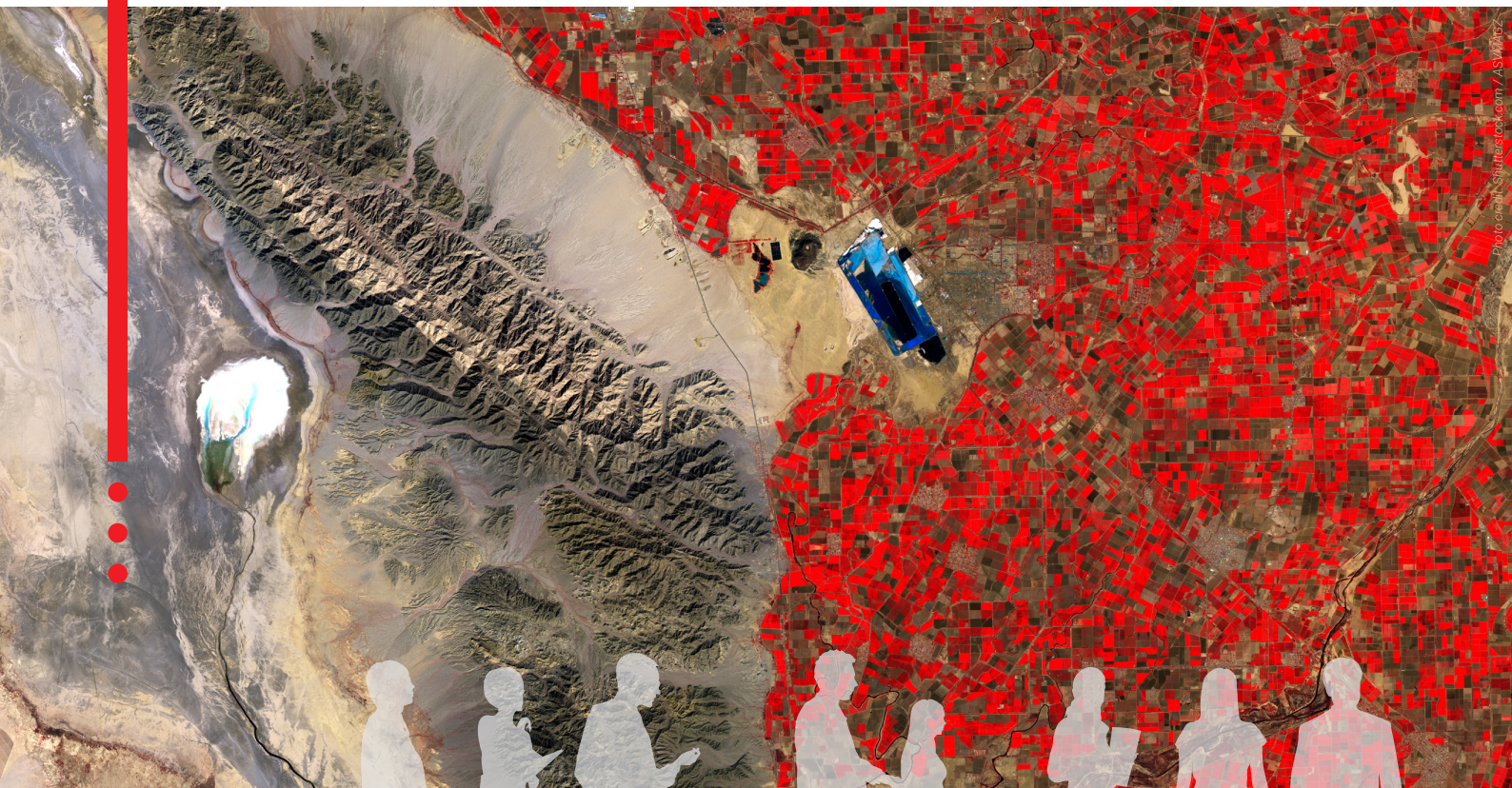


GRIDs Network - Global Resource Information Database Centers

UNEP Environmental Data Centres in support to environmental governance and policies



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E A R L Y W A R N I N G A N D D A T A A N A L Y T I C S

Transforming the lives of People, Places and Planet

The GRIDs Network - Global Resource Information Database Centers

One of UNEP's key roles is to keep the World Environment under review for enhancing the science-policy interface and endorsement of the Global Environment Outlook. In this context, a resolution asked UNEP to upscale its data strategy during the 4th United Nations Environment Assembly in Nairobi (11 - 15 March 2019). This is where the **UNEP network of GRID Centres** comes into play for transforming data into information and support UNEP with analytics since their creation in 1985.

What are the GRID Centres?

The Global Resource Information Database (GRID) is a worldwide network of environmental data centres created by UNEP in the mid-1980s. GRID-Centres are made of a team of data scientists who on top of their technical expertise also fully understand the UNEP mandates, thus helping to bring the most relevant data and information.

The main functions of a GRID-Centre are to acquire data, transforming them into information and knowledge about the state of the world's environment in a timely and understandable manner, before disseminating these to support environmental governance and policies. GRID-Centres handle and analyse geospatial and statistical data on environmental and natural resource issues through Geographic Information Systems (GIS), remotely sensed imagery, in situ or statistical data. They process, integrate, disseminate and communicate geographic information via interoperable data platforms (web services and APIs), through other on-line technologies including interactive graphs or maps as well as via contributions to reports on various topic related to the environment. In short, GRID-Centres provide reliable environmental knowledge based on evidence. There are **8 formal GRID centres**, namely GRID-Geneva, GRID-Arendal, GRID-Warsaw, GRID-Sioux Falls, RADI (The Institute of Remote Sensing and Digital Earth), GRID-Nairobi, GRID-Abu Dhabi Global Environmental Data Initiative, and the Atlantic International Research Centre (AiR Centre) as most recent GRID center at UNEP, while several others are under discussion.



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These centres may have different institutional organization: GRID-Geneva is within the UNEP Early Warning and Assessment Division, other are foundations or NGOs. Despite their different structure or legal status, all of them are working together with several other partners, forming the spine of the **“One Global Partnership”**, supporting UNEP to transform big data into information and knowledge for sustainable development and humanitarian action at the global, regional and national levels.

<https://www.unep.org/about-un-environment-programme/why-does-un-environment-programme-matter/global-resource-information>



Network of GRID-Centres

GRID-Geneva

Description

UNEP/GRID-Geneva was established in 1985 and is the oldest GRID-Centre still in place. It is located in the UNEP Europe's building (2nd UNEP hub after Nairobi), in the international Geneva home to many UN agencies headquarters. Institutionally, it is a partnership between the United Nations Environment Programme (UNEP), the Swiss Federal Office for the Environment (FOEN) and the University of Geneva (UNIGE) that employs more than 20 environment data scientists. GRID-Geneva sits within the Early Warning and Data Analytics Branch of the UNEP's Early Warning and Assessment Division.



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Mandate

GRID-Geneva is the UNEP centre for analytics. It has the mandate to supply UNEP with most relevant and up to date environmental data, information and knowledge to support the environmental assessments and reporting, including foresights of emerging environmental problems and threats, as well as to facilitate access to environmental data and information and build related capacities for improved data/information management and environmental decision-making.

Core Competencies

GRID-Geneva's scientists can process satellite imagery using remote sensing software, create models from geospatial data using Geographical Information Systems (GIS), generate interactive maps and graphs for automatic updates. GRID-Geneva is also specialized in the design and maintenance of data platforms for supporting Ramsar, UNCCD, Barcelona Convention, Cartagena convention, UNDP and other UN agencies. GRID-Geneva's scientists also publish scientific articles and give conferences, capacity building and teaching activities about environmental issues / solutions, or about Data Science.

Flagship Activities in Support to UNEP

GRID-Geneva coordinates various activities to support UNEP's mission, such as:

- UNEP's data platforms (MAP, CEP, Chemicals, Marine Sand Watch, ...), development of on-line tools for interactive data visualisation.
- The continuous development of the **MapX**, an on-line interactive software for geospatial data created by GRID-Geneva.
- The development of interactive graphs and underlying near-real time data on **Essential Climate Variables**, as well as aggregation of data on the fly (e.g. from satellite imagery to trends, from sub-national to national, regional, continental or global levels).
- Generation of complex GIS models, e.g. on flood, tropical cyclones, role of ecosystems for disaster risk reduction, or in support of SDGs, such as on land degradation.
- Big Earth Observations Data through data Cubes (e.g. **the Swiss Data Cube**).
- Support to UNEP publications such as Emerging Environmental Issues – **Foresights, Global Environment Outlook (GEO) assessments, sand and sustainability**.
- Support to Multilateral Environmental Agreements (MEAs), such as the Ramsar convention, UNCCD, Minamata, Stockholm, Barcelona, Cartagena Conventions or in support to SDGs
- Support to International Agreed Environmental Goals (IAEG), such as the Stockholm Convention on Persistent Organic Pollutants, Ramsar or the **Minamata Convention** or in support to SDGs.
- Support for on-line reporting on environmental assessment.

Contact

GRID-Geneva, International Environment House, 11 Chemin des Anémones, 1219 Châtelaine, Switzerland
Phone: +41 22 917 82 37 | Mail: infogrid@unepgrid.ch | Website: <https://unepgrid.ch>

GRID-Arendal

Description

GRID-Arendal is a non-profit environmental communications centre based in Norway. We transform environmental data into innovative, science-based information products and provide capacity-building services that enable better environmental governance. We aim to inform and activate a global audience and motivate decision-makers to effect positive change. Our vision is a society that understands, values, and protects the environment on which it depends.

A major focus for GRID-Arendal is supporting fulfilment of the Sustainable Development Goals, the Paris climate agreement, and other regional and international commitments. Our work is organised into programmes on Polar & Climate, Marine Environment, Waste & Marine Litter, and Transboundary Governance & Environmental Crime, supported by a Communications, Technology & Innovation team.



Photo credit: GRID-Arendal

Mandate

GRID-Arendal was established in 1989 by the Norwegian Ministry of the Environment to support environmentally sustainable development by collaborating with the United Nations Environment Programme and other partners. We work closely with UN agencies, regional organizations, national governments, and other strategic partners to create positive environmental outcomes and impact, particularly in developing countries.

Core Competencies

- Research and environmental assessment
- Science writing
- Communications strategy and products
 - Book and report publishing, Multimedia storytelling, Social media management
 - Graphic design, Video production, Cartography and infographic design, Website development and hosting, Database development, Spatial/data analysis, Webinar organization and hosting, Special events management, Communications planning, Innovation on strategic use of new communication technologies and techniques, Capacity-building services, Workshops, in person and online and Training courses.

Contact

GRID-Arendal, Teaterplassen 3, N-4836 Arendal, Norway

Phone: +47 47 64 45 55 | Mail: grid@grida.no | Website: www.grida.no

GRID-Warsaw

Description

The GRID-Warsaw Centre was established on 17 September 1991 on the basis of agreement between UNEP and the Polish Ministry of Environment, as the 7th centre created in the GRID network. Officially registered as an NGO (in the structure of the National Foundation for Environmental Protection), cooperates with many national and international partners like public authorities, local governments (cities), scientific institutions, NGOs, companies and others.

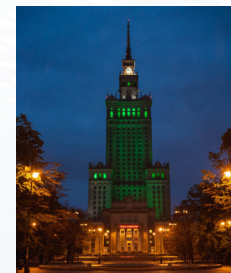


Photo credit: GRID-Warsaw

Mandate

GRID-Warsaw's mandate is to support UNEP with the collection, processing and analysis of data for the science-based environmental decision-making, bringing the most relevant knowledge, supporting the environmental assessments and reporting, as well as increasing awareness on the use and benefits of different geospatial data. GRID-Warsaw's mandate covers also broadly understood environmental education, addressed to various groups of recipients.

Core Competencies

GRID-Warsaw's core expertise covers:

- Processing geospatial data (advanced analysis) using Geographic Information System (GIS) to produce reliable information supporting environmental management
- Creation of dedicated, thematic geoportals
- Creation of interactive maps and charts
- Environmental storytelling with the use of story maps
- Environmental reporting
- Environmental education

Flagship Activities in Support to UNEP

- GRID-Warsaw created several story maps for the World Environment Situation Room presented at the UNEA-3 and UNEA-4
- Elaborated a number of UNEP Foresight Briefs
- Supported elaboration of the UNEP's flagship Global Environment Outlook (GEO) and other environmental assessments• Developed a pilot version of the digital GEO-6 with interactive maps and charts, for chapters
- Created the 1st version of the Carpathian Countries Integrated Biodiversity Information System (CCIBIS) Geoportal

GRID-Warsaw is actively promoting the UNEP mission in Poland by:

- Presenting UNEP's environmental reports to the broad audience
- Hosting the World Environment Day (WED) and initiating on that day a dedicated Green Ribbon campaign promoting the WED's theme till the end of each year
- Initiating the Climate Leadership Programme as a direct response to the resolution (UNEP/EA.4/.5) 'Solving Environmental Problems Through Sustainable Business Practices'
- Initiating the Re: Generation Programme directly related to the UN Decade on Ecosystem Restoration

The SDGs Partnership 'Together for the Environment', created by the GRID-Warsaw in 2016 brings together over 70 institutions in Poland.

Contact

Maria Andrzejewska | Director | maria.andrzejewska@gridw.pl | GRID-Warsaw, 8 Sobieszynska Str., 00-764 Warsaw, Poland
Phone: +48 22 840 6664 | Mail: grid@gridw.pl | Website: <https://gridw.pl>

GRID-Sioux Falls

Description

The North American node of UNEP's Global Resource Information Database (GRID), designated as GRID-Sioux Falls, is located at the **Earth Resources Observation and Science (EROS)** Center of the United States Geological Survey in Sioux Falls, South Dakota, USA. GRID-Sioux Falls has been operational since 1991 and functions as a partnership between the United Nations Environment Programme (UNEP) and the U.S. Geological Survey (USGS).

GRID-Sioux Falls has supported the creation of:

- Environmental change hotspots, an interactive OpenStreetMap presentation of satellite change pairs and storylines,
- The "Atlas of Our Changing Environment" publications (12), ranging from "One Planet, Many People" to "Africa Mountains Atlas", and
- A series of "Alerts" on emerging global environmental issues.

Mandate

Support UNEP-GRID with processing and analysis of satellite imagery to depict environmental changes globally (satellite change pairs); provide capacity building to scientists from developing countries

Core Competencies

Remote Sensing; geospatial data analysis; geographic information systems

Flagship Activities in Support to UNEP

Environmental change hotspots (interactive presentation of satellite change pairs and storylines); "Atlas of Our Changing Environment" publications; Global Environmental Alert Service (series of briefings)

Contact

Dr. Mike Budde | Head International program | USGS/EROS Data Center | Sioux Falls , South Dakota, USA |
Mail: mbudde@usgs.gov | Website: <https://na.unep.net/>



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International Research Center of Big Data for Sustainable Development Goals (CBAS)

The International Research Center of Big Data for Sustainable Development Goals (CBAS) aims to support the implementation of the 2030 Agenda for Sustainable Development by coordinating global efforts in utilizing science, technology, and innovation to achieve the Sustainable Development Goals (SDGs). Operating within a “science for sustainability” framework, CBAS will create scientific solutions and technologies on a global scale to ensure universal access to up-to-date and reliable information on SDG indicators. The center will also facilitate the analysis and visualization of data for informed decision-making and policy development, ensuring equitable access for all stakeholders. CBAS is committed to fostering inclusive development by establishing a Big Earth Data platform and deploying scientific satellites dedicated to monitoring SDG progress. Additionally, it will offer educational programs and establish a think tank to support capacity building and skill development in line with global initiatives. Through regional and global partnerships, CBAS aims to promote multi-stakeholder engagement on shared interests and strengthen collaboration on data and technology within the United Nations framework.

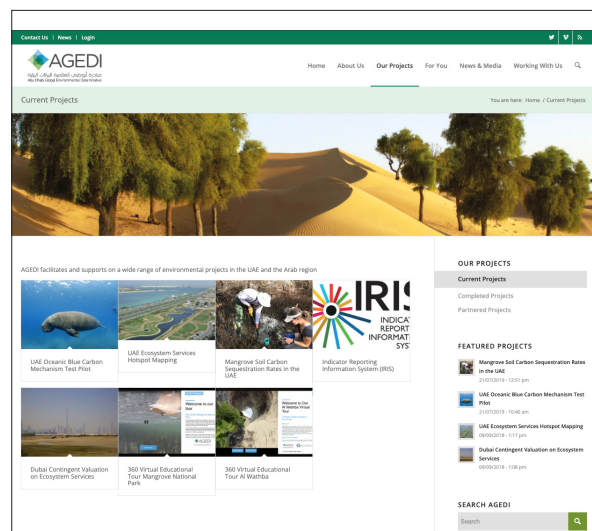
Contact

eMail: secretariat@cbas.ac.cn



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GRID-AGEDI (Abu Dhabi Global Environmental Data Initiative)



The Abu Dhabi Global Environmental Data Initiative (AGEDI), headquartered in Abu Dhabi, was launched by the Environment Agency – Abu Dhabi and United Nations Environment Programme at the UN World Summit on Sustainable Development in 2002. AGEDI's mission is to facilitate the access to quality environmental data that equips policymakers with actionable, timely information to inform and guide critical decisions towards a sustainable future. Recent initiatives include:

- The Indicator Reporting Information System (IRIS) is an AGEDI programme that is being implemented by the AGEDI partners EAD and UNEP's Science Division Technical teams at Nairobi. IRIS has been deployed around the work in several applications and use cases;
- The 'Eye on Earth' initiative which has mobilized a worldwide community of more than 5,000 members by means of three international Summits and through hosting 50 pioneering international online seminars.

Contact

Excellency Ahmed Baharoon - ahmed.baharoon@ead.gov.ae

Website: <https://agedi.org>

GRID-Nairobi



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GRID-Nairobi was one of the two first GRID-Centers created by UNEP in 1985. It is being re-established and currently comprise five UNEP staff within the Early Warning and Data Analytics Branch of the UNEP's Early Warning and Assessment Division at UNEP headquarters in Nairobi.

GRID Nairobi has 3 staff members with Geospatial capabilities and skills and 2 other staff members with programming and environmental data management experience. The Regional Office for Africa has 2 staff members with Geospatial capabilities and skills and 2 more staff members with Environmental Data analyses competences and experience.

The current mandate of GRID-Nairobi is:

- to support the overall management of the GRIDs Network
- to support the establishment of the Early Warning for the Environment.
- to support the 'Geospatial clearance' function of UNEP across the Organization and ensuring the SOP for Geospatial standards of the UN Secretariat
- to support the work of the ECOSOC UN Geospatial network, across 40 Entities of the UN system

In collaboration with the Early Warning and Assessment Division, the Regional Office for Africa of UNEP has been collaborating in several initiatives:

- The Africa Atlas
- The implementation of the WESR Common Country Analysis project supporting the UN Reform and the UN Development Cooperation Framework
- The implementation of Science Policy advice to Africa Countries

Contact:

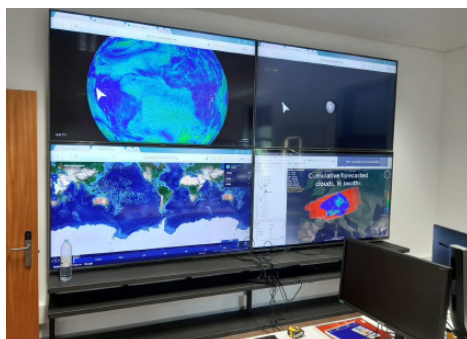
Mr. Douglas Ragan | UNEP/UN Habitat Partnership Programme Manager

Mail: douglas.ragan@un.org

Atlantic International Research Centre (AIR Centre) as new GRID Node at UNEP

The Atlantic International Research Centre (AIR Centre) is an international non-profit organization for the development of scientific and technological applications in the Atlantic region, paying special attention to the study of ocean-space interactions and the development of sustainability solutions. The AIR Centre, headquartered on Terceira Island - Azores, is established as a distributed network which already includes several countries in the Americas (Brazil, Colombia, Mexico, United States). Europe (Portugal, Spain, United Kingdom, Norway), and Africa (South Africa, Nigeria, Angola, Namibia, Cape Verde, São Tomé and Príncipe).

The AIR Centre's mission includes activities in areas of enormous scientific, economic and social impact, such as coastal erosion, protection of bays and estuaries, or mitigation of natural disasters. To carry out its mission, the AIR Centre has deployed an Earth Observation Laboratory at its headquarters on Terceira Island. Thanks to a Memorandum of Collaboration with the European Space Agency, signed in 2019, the AIR Centre hosts the ESA Lab@Azores, an open platform of collaboration which is embedded within ESA as part of its ESA Lab@Initiative.



The AIR Centre EO Lab has already started more than 20 projects in consortium with entities from associated countries (companies, Universities, Research Centres), won in international competitions (national, European and intercontinental programs) on issues related to the oceans such as desalination, off-shore renewable energy, protection of marine ecosystems, detection of plastics in the oceans from satellite, ports of the future, coastal cities, aquaculture, etc.

The AIR Centre EO Lab is using extensively Copernicus data, but in addition a Direct Receiving Station has been deployed at its premises for real time acquisition of data from direct broadcast satellites like Terra, Aqua, Suomi-NPP, JPSS-1 (NOAA 20) and FengYun3A/B/C/D. In addition, the AIR Centre is also one of the shareholders of the Earth Observation satellite operator GEOSAT, which operates the satellites GEOSAT 1 and GEOSAT 2 providing unique very high resolution (down to 75 cm spatial resolution) images of the planet to help developing scientific projects and technological applications towards sustainability and help solving the global challenges that we are facing. An EO Data Centre has been deployed at AIR Centre to store the received EO data and to make it available to all the network in real time and to UNEP as a new node of its GRID.





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Contact

For GRID AiR Centre, Azores

Prof. Jorge Miguel Miranda | Executive Director
Alternate: Dr. Joao Pinelo | Senior Project Officer | Head of Data Science | Cloud Infrastructure, and Development |
Mail: joao.pinelo@aircentre.org

Pedro Freire da Silva | Chief Technology Officer
Mail: pedro.silva@aircentre.org

For Air Centre - Atlantic International Research Centre

Headquarters: TERINOV – Parque de Ciência e Tecnologia da Ilha Terceira, Canada de Belém s/n, Terra Chã, 9700-702 Angra do Heroísmo, Açores, Portugal

Lisbon Office: Palácio das Laranjeiras, Estrada das Laranjeiras, 205 1649-018 Lisboa, Portugal



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data.unep.org/earlywarning/gridsnetwork

Contact: alexandre.caldas@un.org



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