

# SPACE-RELATED ACTIVITIES WITHIN THE UNITED NATIONS SYSTEM



UNITED NATIONS

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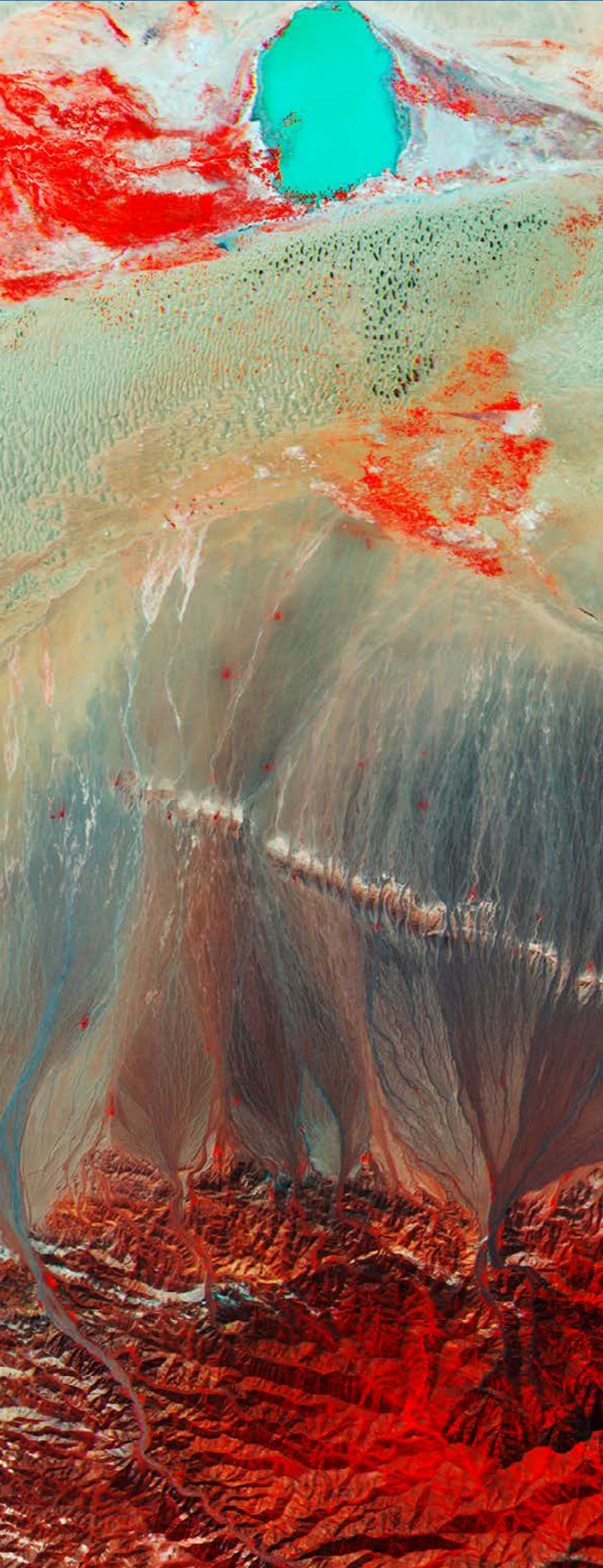
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## Background

The United Nations Inter-Agency Meeting on Outer Space Activities (UN-Space) serves as the focal point for inter-agency coordination and cooperation in space-related activities. This coordination mechanism, established in mid-1970s, aims to promote inter-agency cooperation and to prevent duplication of efforts related to the use of space applications by United Nations organizations. The United Nations Office for Outer Space Affairs (UNOOSA) serves as secretariat to UN-Space.

In line with the agreement by UN-Space, the present publication highlights space-related activities within the United Nations system and features, in alphabetical order, United Nations entities that address space-related activities or utilize space science, technology, data and applications in their routine operations in areas under their respective mandates.





## Economic Commission for Africa

Established by the Economic and Social Council of the United Nations in 1958 as one of the five regional United Nations commissions, the mandate of the Economic Commission for Africa (ECA) is to promote the economic and social development of its member States, foster intraregional integration, and promote international cooperation for development in Africa. Made up of 54 member States, and playing a dual role as a regional arm of the United Nations and as a key component of the African institutional landscape, ECA is well positioned to make unique contributions to address the continent's development challenges.

ECA works to build capacities for risk and disaster management systems through the use of information and communication technologies in Africa and to address the lack of both awareness and established systems for prevention, preparedness and monitoring of natural disasters.

ECA is currently providing technical and advisory support to the Digital Earth Africa Programme, an initiative to develop a series of data structures and tools that organize and enable the analysis of large Earth observation satellite data collections over Africa. Digital Earth Africa continuously synthesizes satellite images collected over the last 30 years (taken every two weeks at 25-metre squared resolution), and current images (taken every 5 days at 10-metre squared resolution) for the entire African continent. It provides these images and derived products freely in a platform that can be accessed by any user and will deliver a unique capability to process. The programme is implemented through a network of distributed nodes of technical institutions empowered to develop analysis-ready data, products and services in the areas of climate change, water resources and flood risks, agriculture and food security, land degradation and coastal erosion, and urbanization.

ECA is partnering synergistically with the African Union in the implementation of the Global Monitoring for Environment and Security and Africa (GMES and Africa) Programme which aims at supporting African organizations, policymakers and practitioners, to make more effective use of Earth observation data to develop relevant operational information services to support sustainable management of natural resources and tackle climate change.





Technically, GMES and Africa use, reuse and adapt the European Copernicus Programme data and services for the African context. The Programme is rolled-out through consortiums of technical institutions working to strengthen local capacities, institutional, human and technical resources for access to and exploitation of Earth observation-based services on an operational basis in developing Earth observation data, information products and services on natural resources, water, marine and coastal areas, environment and climate change in relevant African institutions.

ECA has carried out a study analysis aimed at mitigating the impact of the COVID-19 crisis on deforestation in the Congo Basin. The spatial data used for the analysis is derived from Earth observation data sets and other ancillary information. making it possible to link spatial decision-support efforts with other planning efforts. Through the study, it was possible to develop an analytical framework (suitability) using a spatial decision-support system from available data covering the Congo Basin Forest for environment and natural resource analysis and forecasting within the context of COVID-19. The suitability of geospatial analysis exercises allows participating countries to determine and prioritize the various sectors for investment within the post-COVID recovery period. The spatial data used for the analysis (including real-time data such as Sentinel-2 imagery and weather data) are combined to develop a geoportal that displays the spatial patterns of key thematic features: logging, agriculture, mining, afforestation, infrastructure and utilities, roads, urbanization, etc.

For more information: [www.uneca.org](http://www.uneca.org)



## Economic Commission for Latin America and the Caribbean

The Economic Commission for Latin America and the Caribbean (ECLAC), headquartered in Santiago de Chile, is one of the five regional commissions of the United Nations. It was founded in 1948 with the purpose of contributing to the economic development of Latin America, coordinating actions directed towards that end, and reinforcing economic ties among countries and with other nations of the world. The promotion of the region's social development was later included among its primary objectives.

ECLAC has been engaged in the identification of best practices in the use of satellite remote sensing data to enhance agricultural productivity and sustainability and to mitigate the effects of climate change, and in the regional dissemination of such experiences through publications, seminars, workshops and technical assistance activities. ECLAC has also organized international seminars to discuss, among other subjects, experiences related to the use of spatial imagery, satellite data and satellite Internet access for agricultural purposes, including in areas such as precision agriculture and precision irrigation.

ECLAC works towards interoperability and open data, through platforms with the SDG Gateway, the COVID-19 Observatory and the CEPALSTAT platform, which articulates structured and unstructured data by linking them to the digital repository of documents. The new CEPALSTAT interface represents the renovation and innovation of the existing platform based on the most comprehensive and complete integration of comparable regional sociodemographic, economic and environmental statistics on Latin America and the Caribbean, with geospatial information.

For more information [www.cepal.org/en](http://www.cepal.org/en)





## Economic and Social Commission for Asia and the Pacific

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), headquartered in Bangkok, is one of the five regional commissions of the United Nations, promotes cooperation among its 53 member States and 9 associate members in pursuit of solutions to sustainable development challenges.

Since 1994, ESCAP has been promoting the Regional Space Applications Programme for Sustainable Development in Asia and the Pacific, to enhance the capacity of developing nations in the use of space technology and its applications to address emerging issues in social and economic development. In October 2018, ESCAP member States ramped up regional cooperation on space applications to help advance the SDGs by adopting the Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018–2030). The Plan of Action provides a blueprint to harness space technology, geospatial information and digital innovations towards advancing the 2030 Agenda for Sustainable Development. As of October 2022, countries in Asia and the Pacific are at various stages of implementing over 600 reported activities that are contributing to 154 out of the 188 actions identified in the Plan of Action across six priority thematic areas: disaster risk reduction and resilience; natural resource management; connectivity; social development; energy; and climate change. Lessons from these actions are documented in *Geospatial Practices for Sustainable Development in South-East Asia 2022: A Compendium*.

On 26 October 2022, ESCAP and the Government of Indonesia co-organized the fourth Ministerial Conference on Space Applications for Sustainable Development in Jakarta, under the theme of “Space+ for our Earth and Future”, to sustain and reinforce regional cooperation.

One of the key outcomes of the Conference is the adoption of the Jakarta Ministerial Declaration on Space Applications for Sustainable Development which calls for accelerating the implementation of Phase II (2022–2026) of the Plan of Action by better integrating digital technologies and innovations.





“Space+ for our Earth and Future” consists of four foundational elements, namely leveraging innovative digital applications; engaging end users in multiple sectors, and the youth; managing data and information more effectively; and enhanced partnerships with global, regional and national stakeholders. Together they transcend traditional approaches by promoting innovative applications of space technology and geospatial information in tandem with digital innovations, research, knowledge-sharing and capacity-building.

The Regional Cooperative Mechanisms for Drought Monitoring and Early Warning is a recognized successful South-South cooperation story. The mechanism has adopted an explicit focus on engaging user sectors, most notably, in agriculture, livestock and water management, and has supported research and training of young professionals, leading to more user-oriented products and services.

Alongside well-established space applications in drought monitoring and early warning, applications that improve the spatial mapping of poverty incidence, increase the availability and accessibility of air pollution data, improve the accuracy and tracking of greenhouse gas emissions, and evidence-based accounting of land, renewable energy and other natural resources are also emerging.

North and Central Asian countries have improved their capacity to use open-source mapping and programming tools to compile land statistics in the format prescribed by the United Nations System of Environmental Economic Accounting.

For more information: [www.unescap.org/our-work/ict-disaster-risk-reduction](http://www.unescap.org/our-work/ict-disaster-risk-reduction)





## Economic and Social Commission for Western Asia

The United Nations Economic and Social Commission for Western Asia (ESCWA) is a regional commission of the United Nations working to promote economic and social development through cooperative agendas with 22 Arab member States. The Commission facilitates capacity and knowledge-sharing with the Arab countries in Africa and the Middle East; together representing a region covering approximately 13 million km<sup>2</sup> with a population exceeding 450 million people (2022).

In July 2022, ESCWA operationalized a geostatistical laboratory to consolidate and extend geostatistical information for synthesis, analysis and visualization of regional statistics. The laboratory is supported by the Leave-No-Location-Behind Canvas, an ESCWA project that has collated hundreds of layers of “anything-anywhere-anytime” Arab geostatistical information available in open-source domains. These layers of geostatistical data are being reconciled; rendered fit-for-use and fit-for-purpose, to construct and disseminate indicators related to the society, economy and the environment of the Arab region. The outcomes will be published under quarterly releases, with the first release planned for March 2023. The ensuing quarterly releases will be collated and updated towards an online publication: The Geostatistical Atlas of the Arab World, providing a dashboard for measuring, gauging and valuing “the things that matter in people’s daily lives”. With technical support from the ESCWA Information, Communication and Technology Section, the core of the Geostatistical Atlas will be pivoted on a smart search engine leveraging machine learning towards responsive searches that would intuit what policymakers and end users are looking for.

As an early example, one of the low-hanging fruits of the Atlas is an indicator on land cover change. Land cover change is a surrogate measure for gauging the decoupling between the potential economic and ecological capacities of natural resources. Aggregated land cover classes across the Arab region are processed to detect land cover change. The aggregation collated multi-land cover classes into four high level classifications: artificial land cover (i.e., built-up areas); agricultural cropland cover; inland water cover; and natural land cover (such as forests and barren land). The outcome (please see the link provided) is an example showcasing an early and initial output from the GeoStatistical Laboratory. Based on time series analysis, estimates are reported with their respective 95 per cent confidence intervals.





For example, between 1992 and 2020 (29-year time span), the increase in the total built-up area across the Arab region is estimated to be between 550 km<sup>2</sup> and 648 km<sup>2</sup> per year. This annual rate is approximately equivalent to the size of the island of Bahrain. In other words, the annual expansion rate of the built-up areas in the Arab region is metaphorically equal to converting one Bahrain island per year in area equivalency from natural and semi-natural landscapes (such as barren land, inland water and agricultural land) to artificial landscapes (i.e., built-up areas). Correspondingly, the increase in total agricultural cropland cover across the Arab region is estimated to be between 1,617 km<sup>2</sup> and 2,305 km<sup>2</sup> per year. This annual expansion rate is approximately equivalent to the size of the city of Amman in land area equivalency. On the other hand, the decrease in the total area of inland water cover across the Arab region is estimated to be between 53 km<sup>2</sup> and 152 km<sup>2</sup> per year. This annual decrease is approximately equivalent to the size of Dubai City. Similarly, the decrease in the total area of natural cover (such as barren land and tree cover) across the Arab region is estimated to be between 2,179 km<sup>2</sup> and 2,705 km<sup>2</sup> per year. This annual decrease is approximately equivalent to the current area of Cairo.

For more information: [Leave-No-Location-Behind - iSEE\\* The Arab World](#)





## Food and Agriculture Organization of the United Nations

The Food and Agriculture Organization of the United Nations (FAO) is an agency with 194 Member States, established in 1945 and headquartered in Rome, that leads international efforts to defeat hunger. FAO is a large user of Earth observation satellite and space-based telecommunications and guidance systems, data and services. FAO helps countries to implement appropriate geospatial solutions to create sustainable food systems.

Since its origin, FAO develops and uses geospatial methods and tools for sustainable natural resources monitoring. The Geospatial Unit in the Land and Water Division supports the adoption of geospatial solutions that are customized to in-country needs compliant with international standards. The Digitalization and Informatics Division provides technical solutions on geospatial data to strengthen data sharing and accessibility such as data repository for country-owned geospatial data sets to support the institutional memory of member countries and to improve data and information accessibility. The Forestry Division develops and provides free and open-source software and related capacity development.

The Open Foris Initiative, established in 2011, contains tools that allow accurate field data collection, augmented visual interpretation of satellite images as well as efficient cloud-based processing of large remote sensing data archives. As part of the FAO Hand-in-Hand Initiative, FAO uses geospatial information technology to collect and analyse, using innovative artificial intelligence and machine learning approaches (e.g., Google Earth Engine, SEPAL), all available data from within the Organization and other agencies and brings geospatial data such as its high-resolution soil, water, forestry, environmental, animal production, pest and diseases, road network, crop areas and crop calendar data.

There are several georeferenced information systems and databases across the FAO departments/divisions and several information portals and databases that report on agriculture, rural development and food security at FAO that provide information, both spatial and non-spatial. FAO geospatial analytical capacities, modelling frameworks, tools and systems for monitoring and forecasting are world-renowned and information from the array of systems developed to date is widely acknowledged as ground-breaking in its extent





and innovative nature. FAO benefits from space-related technologies to support sustainable development and technical capacities such as in the realm of emergency response, disaster preparedness, agricultural, forestry, fishery and environmental resources monitoring, land cover, land use, agroecological zoning, water, biodiversity, climate change and agrifood system digital transformation.

The Environmental Technical Working Group in Cox's Bazar, Bangladesh, benefits from the support of FAO to plan and restore degraded land and mitigate risks inside and around refugee settlements. FAO, in close collaboration with the World Food Programme and government partners has been providing timely and local specific information on flood impacts and emergencies in agriculture by combining and integrating different remote sensing and field information. Building on the latest technological advances, information on population, land use and land cover, crop type data sets and infrastructure information have been integrated with the latest imagery to produce impact assessments.

In agroecological zoning, the latest space-related technologies, data and models, various data sets on soil, land, water, vegetation as well as statistics, are integrated to produce agro-climatic analysis, modelling crop performances and yield gap analysis at global to local levels considering climate change scenarios. FAO and the Asian Institute of Technology have developed free and open-source applications in support of national and local applications in the Lao People's Democratic Republic.

For more information: [www.fao.org](http://www.fao.org)





## International Atomic Energy Agency

The International Atomic Energy Agency (IAEA) is an intergovernmental organization that seeks to promote the peaceful use of nuclear energy and to inhibit its use for any military purpose, including nuclear weapons. It was established in 1957 as an autonomous organization within the United Nations system. IAEA has its headquarters in Vienna.

IAEA serves as an intergovernmental forum for scientific and technical cooperation on the peaceful use of nuclear technology and nuclear power worldwide. It maintains several programmes that encourage the development of peaceful applications of nuclear energy, science and technology; provide international safeguards against the misuse of nuclear technology and nuclear materials; and promote and implement nuclear safety (including radiation protection) and nuclear security standards. The organization also conducts research into nuclear science and provides technical support and training in nuclear technology to countries worldwide, particularly in the developing world.

IAEA continues to support the work of the Working Group on the Use of Nuclear Power Sources in Outer Space of the Scientific and Technical Subcommittee in order to facilitate the implementation of the joint United Nations Committee on the Peaceful Uses of Outer Space Scientific and Technical Subcommittee and the International Atomic Energy Agency Safety Framework for Nuclear Power Source Applications in Outer Space. Furthermore, IAEA is ready to support the future activities of the Working Group on the consideration and safety implications of potential future uses of nuclear power sources (NPS) in outer space, particularly those involving nuclear reactors.

NPS for use in outer space have been developed and used in space applications where unique mission requirements and constraints on electrical power and thermal management precluded the use of non-nuclear power sources. Such missions have included interplanetary missions to the outer limits of the solar system, for which solar panels were not suitable as a source of electrical power because of the long duration of these missions at great distances from the Sun.





According to current knowledge and capabilities, space NPS are the only viable energy option to power some space missions and significantly enhance others. Past, present and foreseeable space applications include radioisotope power systems and nuclear reactor systems for power and propulsion. The presence of radioactive materials or nuclear fuels in space NPS and their consequent potential for harm to people and the environment in the Earth's biosphere in the event of an accident require that safety should always be a part of the design and application of NPS.

IAEA has an active programme in the area of preparedness for and response to nuclear and radiological emergencies. IAEA maintains the international Emergency Preparedness and Response framework, which facilitates the development and maintenance of capabilities and arrangements for preparedness and response to nuclear and radiological emergencies and is based on international legal instruments. The Inter-Agency Committee on Radiological and Nuclear Emergencies, for which IAEA provides the secretariat and UNOOSA is a member, plays an important role. It maintains the Joint Radiation Emergency Management Plan of the International Organizations (JPLAN), which provides a mechanism for coordination, and clarifies the roles and capabilities of the participating international organizations. JPLAN describes a common understanding of how each organization acts during a response and in making preparedness arrangements for a nuclear or radiological emergency.

For more information: [iaea.org](http://iaea.org)





## International Telecommunication Union

The International Telecommunication Union (ITU) creates regulatory certainty for the development and effective operation of satellite and ground-based systems by allocating and coordinating the necessary radio-frequency spectrum and associated satellite orbit resources and carrying out technical and regulatory studies to regularly update the provisions of the Radio Regulations, the intergovernmental treaty governing the use of the radio-frequency spectrum and associated satellite orbits. ITU also continuously produces international standards (ITU recommendations) for telecommunication systems and networks on radiocommunication matters related to spectrum monitoring, satellite communication services, radionavigation satellite systems, emergency radiocommunications for public protection and disaster relief, scientific space systems (for example those gathering data for climate change) and radio astronomy.

The next World Radiocommunication Conference in 2023 (WRC-23) will update the Radio Regulations based on a predefined agenda. As for each WRC, this agenda contains a number of items related to space services, such as the use of Earth stations in motion on ships or planes, remote sensing and inter-satellite links.

The Space Services Department of the Radiocommunication Bureau (BR) is responsible for implementing the coordination and recording procedures for space systems and Earth stations in conformity with the Radio Regulations. BR maintains the Master International Frequency Register containing the satellite frequency records.

ITU has also provided capacity-building and assistance activities to Member States and Sector Members. BR organizes Regional and World Radiocommunication Seminars. The Standardization Bureau leads the AI for Good programme including a part dedicated to space issues.

The Plenipotentiary Conference in 2022 adopted two new resolutions about the role of ITU in the implementation of the “Space 2030” agenda and about the sustainability of radio spectrum and associated satellite orbit resources used by space services.





The Radio Regulations contain plans for the broadcasting-satellite service (BSS) where resources are reserved for equitable access by Member States in the future. However, parts of these plans, especially those of developing countries in the ITU Regions 1 and 3, have been severely degraded over time, making it difficult for these countries to implement them on an actual satellite. The World Radiocommunication Conference in 2019 (WRC-19) adopted revisions to the BSS plans that made available additional resources to an already congested GSO orbit. WRC-19 also adopted resolution 559 (WRC-19) titled “Additional temporary regulatory measures following the deletion of part of Annex 7 to Appendix 30 (Rev. WRC-15) by WRC-19” to give priority in the newly opened GSO arcs to eligible administrations to replace their degraded frequency assignments.

Forty-five administrations, mainly from the African region, out of the 55 countries identified eligible by the Bureau, had submitted their requests. Those administrations, with the assistance of the Radiocommunication Bureau, have since then been making every endeavour to conduct frequency coordination with 100 affected administrations to be able to complete the implementation of that resolution at WRC-23 in 2023 and regain access to the satellite spectrum and associated GSO location reserved for their countries.

For more information: [www.itu.int/en/ITU-R](http://www.itu.int/en/ITU-R)





## United Nations Development Programme

The United Nations Development Programme (UNDP) is a United Nations agency tasked with helping countries eliminate poverty and achieve sustainable economic growth and human development. Headquartered in New York City, it is the largest United Nations development aid agency, with offices in 170 countries.

The UNDP Strategic Plan 2022–2025 declares a structural transformation, particularly for green, inclusive and digital transitions, as one of its three strategic directions. Under this umbrella, it will continue to provide support for climate change adaptation and mitigation through forestry, agriculture, water and sustainable energy as well as ecosystem and biodiversity support in over 140 countries. Building on this portfolio, UNDP is leveraging digital technology and data to achieve climate goals. It takes advantage of its field presence and strong relationships with government partners to contribute to the global creation of useful data and analytics through expertise, ground proofing, and by defining the most critical problems in order to bring data to life.

The UNDP Geographic Information System and Satellite Imagery Team is working with countries to provide free analysis and interpretation of the data. To meet its need for a satellite analysis to fully understand the state of specific locations before, during and after its project interventions, UNDP entered into collaboration with the United Nations Satellite Centre (UNOSAT) for the purpose of developing a web-mapping interface for the monitoring and evaluation of UNDP projects focused on infrastructure rehabilitation in sub-Saharan Africa. Several projects involved the reconstruction of essential infrastructure such as hospitals, schools and electrical substations for which satellite imagery was used to capture the evolution from damaged sites to functional facilities.

For more information [undp.org](https://undp.org)





## United Nations Educational, Scientific and Cultural Organization

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is a specialized agency of the United Nations aimed at promoting world peace and security through international cooperation in education, the arts, sciences and culture. It has 193 Member States and 12 associate members, as well as partners in the non-governmental, intergovernmental and private sector.

The founding mission of UNESCO is to advance peace, sustainable development and human rights by facilitating collaboration and dialogue among nations. It pursues this objective through five major programme areas: education, natural sciences, social/human sciences, culture and communication/information. UNESCO sponsors projects that improve literacy, provide technical training and education, advance science, protect independent media and press freedom, preserve regional and cultural history, and promote cultural diversity. It helps establish and secure World Heritage Sites of cultural and natural importance, works to bridge the worldwide digital divide, and creates inclusive knowledge societies through information and communication.

UNESCO space-related activities are aimed at creating awareness among Member States by showing them, with a series of applications, the full potential of space technologies for the well-being of humanity. UNESCO space activities include the Global Ocean Observing System, implemented by the International Oceanographic Commission (UNESCO-IOC); Earth observation, through the Global Earth Observation (GEO and GEOOS) forums, in which UNESCO is represented by its Earth Sciences Programme; and support of the activities of the World Heritage Convention.

For more information: [www.unesco.org/en](http://www.unesco.org/en)





## United Nations Environment Programme

The United Nations Environment Programme (UNEP) is responsible for coordinating responses to environmental issues within the United Nations system. Its mandate is to provide leadership, deliver science and develop solutions on a wide range of issues, including climate change, the management of marine and terrestrial ecosystems, and green economic development. The organization also develops international environmental agreements, publishes and promotes environmental science, and helps national governments achieve environmental targets.

UNEP hosts the secretariats of several multilateral environmental agreements and research bodies, including the Convention on Biological Diversity, the Minamata Convention on Mercury, the Convention on Migratory Species and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In 1988, the World Meteorological Organization and UNEP established the Intergovernmental Panel on Climate Change (IPCC). UNEP is also one of several Implementing Agencies for the Global Environment Facility and the Multilateral Fund for the Implementation of the Montreal Protocol.

UNEP acts as a catalyst, advocate, educator and facilitator to promote the wise use and sustainable development of the global environment. The mission of UNEP is to provide leadership and encourage partnership in caring for the environment by inspiring, informing and enabling nations and peoples to improve their quality of life without compromising that of future generations.

For more information: [www.unep.org](http://www.unep.org)





## United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) established an international environmental treaty to combat “dangerous human interference with the climate system”, in part by stabilizing greenhouse gas concentrations in the atmosphere. It was signed by States at the Earth Summit in 1992, and established a secretariat headquartered in Germany. The Kyoto Protocol, the first implementation of measures under UNFCCC, was superseded by the Paris Agreement, which entered into force in 2016.

The systematic observation community has a vital and increasingly important yet undervalued role in supporting UNFCCC and the Paris Agreement. Understanding, monitoring and predicting weather and climate ultimately relies on observations. Systematic observations are therefore the foundation of a climate services value chain that connects observations to decision-making and remains fundamental to both understanding climate change and supporting climate change action (mitigation and adaptation). Through this value chain, systematic observations provide the data that underpin climate models, forecasts on various timescales, tailored products and services, and early warning systems.

Earth observation information does not just provide information on the state of the climate system; it enables Governments and other decision makers to implement mitigation and adaptation actions (at national, subnational and regional level). Earth observation can also be used to monitor, report and verify those actions to support national efforts and contribute to global processes, such as UNFCCC. Earth observation information is also needed for the global stocktake process of the Paris Agreement where it can provide global and aggregated information on collective progress towards achieving the purpose of the Agreement and its long-term goals.





Global climate observation and monitoring needs to cover the entire Earth system and, equally importantly, any effort to monitor, understand and predict climate and climate-related phenomena depends on access to observations covering the entire globe. The UNFCCC definition of the climate system is “the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions.” The requirement for full transparency around UNFCCC processes means that all parties must be given free and unrestricted access to all climate-related observations.

The multiscale nature of the challenges of climate change requires a clear and cohesive action-based framework for an integrated observation system that optimizes the acquisition and the international exchange of observations, as well as the understanding and uptake of Earth observation information to fully implement the Paris Agreement. The Global Climate Observing System Programme implementation plan provides an overview of the basic observation requirements of this system based on regular assessments in terms of observation needs as well as of the state of the observing system.

The role of observations from space is invaluable as part of this work. It includes factors such as the greenhouse gas monitoring service, observation for and on adaptation, understanding of hotspots of climate change and recognizing hotspots of greenhouse gas emissions.

Supported by the secretariat to the Convention, the Subsidiary Body for Science and Technological Advice (SBSTA) is one of two permanent subsidiary bodies to the Convention established by the Conference of the Parties. SBSTA has been increasingly emphasizing the value of systematic observations, a term that encompasses Earth observations in the context of the Convention due to their importance for the work of IPCC.

For more information: <https://unfccc.int>





## United Nations Geospatial (Geospatial Information in Office of Information and Communications Technology and Global Service Centre of the Department of Operational Support)

The United Nations Geospatial comprises of geospatial professionals led by the Geospatial Information Section at the headquarters in the Office of Information and Communications Technology, in the United Nations Global Service Centre and in peace operations. The [United Nations Geospatial responsibilities and mandates](#) are towards Member States, the Security Council, the leadership of the Secretariat including through the United Nations Operations and Crisis Centre (UNOCC), the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM), related to the administrative instruction of the Secretary-General and the general public.

The vision of United Nations Geospatial is the effective, efficient and universal use of geospatial information in support of all mandates and operations of the United Nations for a better world, and its mission is to mainstream the use of geospatial information across the Secretariat and the United Nations system for unified, integrated and accessible information, analysis and visualization for evidence-based decision-making and data action. The specific geospatial services are detailed under [secretariat services](#) and include cartography, geospatial data management, Earth observation, advanced analytics, webservices, guidance and secretariat responsibilities to UN-GGIM.

Since 2005, the United Nations Geospatial Information Section is the office responsible for reviewing and contributing to the establishment of a system contract for Earth observation and satellite imagery sensors through the procurement services of the Secretariat, enabling the Organization to have access to the services of commercial vendors for optical, infrared, radar and other related technologies. The system contract is also available to the wider United Nations system. In May 2021, following destruction in Gaza, the United Nations Geospatial Information Section started to procure satellite imagery, when possible, on behalf of major users of Earth observations for their operations such as FAO, UNDP, UNICEF, the United Nations Satellite Centre and the World Food Programme.





The use of data derived from Earth observation and satellite sensors has been centred by the secretariat around three main pillars: to plan and monitor peace operations; to interpret and corroborate assessments of the Panel of Experts established in accordance with *specific resolutions and sanctions committees of the Security Council*; and to contribute to the *peaceful resolution of conflicts*.

During ongoing crises and threats to international security, the United Nations Geospatial services provided Earth observations, sensor interpretation, intelligence and satellite sensors analysis, thematic mapping and other web-feature services in support of effective and timely awareness, day-to-day operations and decision-making for the leadership of the Organization through the United Nations Operations and Crisis Centre.

As part of its ongoing capacity development activities and awareness-raising on the use of geospatial information and knowledge, including Earth observation, the Geospatial Information Section delivered a workshop on establishing a national geospatial strategy aimed at enhancing national capacities, including on mapping techniques and data collection that leverages Earth observation and remote sensing.

For more information: <https://www.un.org/geospatial>





## United Nations Global Pulse

The United Nations Global Pulse is an initiative of the United Nations that works towards increasing the number of Big Data for Development (BD4D) innovation success cases; lowering systemic barriers to big data for development adoption and scaling; and strengthening cooperation within the big data for the development ecosystem.

United Nations Global Pulse has been working closely for many years with partners across the United Nations system to investigate ways in which artificial intelligence can be applied to satellite image analysis. This has led to numerous efforts, including the development of PulseSatellite, which was co-created with UNOSAT, the United Nations Satellite Centre.

PulseSatellite is a collaborative satellite image analysis tool which leverages neural network models that can be retrained on-the-fly and adapted to specific humanitarian contexts and geographies. The tool already has numerous AI models, such as those for the rapid mapping of buildings and floods.

United Nations Global Pulse is also working closely with UNOSAT to develop benchmark data sets for shelter (refugee camp) mapping, building footprint detection and damage assessment. These data sets could be used to test the increasingly numerous models which are becoming available for these tasks, but in the context of United Nations-focused data sets, they often cover different geographical regions to those where the models were trained to perform well on.

United Nations Global Pulse also works to apply much of its learning in this space to other areas, including through an ongoing project with an inter-agency data science working group to map out and document the use of data science, and especially satellite image analysis, in the aftermath of crises. The group seeks to identify challenges and lessons learned, as well as guidance so that we can continue to improve how we help those most vulnerable when crisis strikes.

PulseSatellite is a collaborative satellite image analysis tool which leverages neural network models that can be retrained on-the-fly and adapted to specific humanitarian contexts and geographies. The tool was developed in close collaboration with UNOSAT.





Since the project's inception in 2017, PulseSatellite has expanded to become a web-based toolkit that can be easily adapted to numerous remote sensing applications and which allows for the incorporation of models created by other users. Currently, we have three active models: one that allows users to map structures in refugee settlements; a roof density detection model (e.g. for informal settlement mapping); and a flood mapping model.

The flood mapping model has been deployed by UNOSAT to identify areas affected by flooding around the world, including in Bangladesh, Mozambique and Nepal and led to the first flood map co-generated by an AI application to be released by the United Nations. Using the model has been shown to reduce the time required to produce maps in the aftermath of a crisis significantly, thereby enabling responders to act more quickly.

United Nations Global Pulse is also currently investigating the use of the shelter (refugee camp) mapping model, in collaboration with WHO, to map refugee settlements for the purposes of population estimation and informing resource planning for public health programming.

PulseSatellite is open for use by other United Nations agencies. In the future we will continue to work with end users to test and help refine PulseSatellite and expand into more applications and use cases.

For more information [www.unglobalpulse.org](http://www.unglobalpulse.org)





## United Nations Human Settlements Programme

The United Nations Human Settlements Programme (UN-Habitat) is the United Nations programme for human settlements and sustainable urban development. It was established in 1977 as an outcome of the first United Nations Conference on Human Settlements and Sustainable Urban Development (Habitat I) held in Vancouver, Canada, in 1976. UN-Habitat is mandated by the General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all.

Our rapidly urbanizing world requires continuous monitoring of urban transformations both in time and space, and constantly ensuring that we use the resulting knowledge for informed policies and actions to advance progress towards sustainable urbanization. Urbanization manifests itself both spatially and demographically, and at scales ranging from the neighbourhood to the city, national and global scales. The rate at which demographic and spatial changes happen on different scales requires continuous monitoring through well-established local monitoring systems, which can often be costly and time-consuming. Space applications and related analytics offer accessible, affordable, reliable and consistent ways to understand urban changes at unprecedented spatial and temporal scales, which is furthered by advances in the free and open sharing of imagery and processing/analytical methods.

The work of UN-Habitat in supporting continuous urban monitoring against the sustainable development goals (SDGs), the new urban agenda (NUA) and the harmonized urban monitoring framework integrates space-science-based measurements, particularly those which rely on satellite imagery for land cover/land-use classification and built-up area extraction. The information extracted from these analyses is used for indicator-specific applications, such as understanding urban trends, population distributions and their proximities to urban spaces and services, and understanding spatial inequalities and climate risks, among others; all of which directly contribute to the agenda of leaving no one and no place behind.





To advance the use of space resources for continuous urban monitoring and informed decision making, UN-Habitat in collaboration with the Group on Earth Observations (GEO) and Earth observations for the SDGs, as well as with contributions from more than 40 organizations, national statistical systems and other stakeholders, developed the Earth Observation Toolkit for sustainable cities and human settlements in 2020.

The Toolkit aims to demonstrate the value of Earth observations and geospatial analysis and make available, in one central place, resources that are directly relevant to monitoring progress against the SDGs and NUA, and contribute to timely and informed decision-making. The Toolkit contains resources, such as data, tools, use cases and learning opportunities that are related to the spatial manifestation of urbanization, housing, open space and urban public transport. The Toolkit's four priority areas include impact, awareness-building, bench-learning across levels and promoting fair practices for data provision and use.

The use cases component of the Toolkit showcases direct applications of Earth observation in the monitoring of progress against SDG 11 targets at the national and local city levels from across the world. Examples from the Toolkit are drawn from Colombia, Greece, Mexico, Poland, South Africa, Uganda and the United Arab Emirates, and also include global level applications for resources such as OpenStreetMap. These use cases vary in scale and types of applications for Earth observation resources in urban monitoring, with featured uses including those on spatial changes in urban areas, access to green and public open spaces, air quality and public transport, as well as technologies used for measurements. The Toolkit's contributing community continues to grow.

For more information, visit the Toolkit [here](#).





## United Nations Office for Disarmament Affairs

The United Nations Office for Disarmament Affairs (UNODA) is an Office of the Secretariat established in January 1998 as the Department for Disarmament Affairs. Its goal is to promote nuclear disarmament and non-proliferation and the strengthening of the disarmament regimes in respect to other weapons of mass destruction, and chemical and biological weapons.

The Office facilitates the efforts of Member States to prevent an arms race in outer space by providing substantive secretariat services to the Conference on Disarmament in its consideration of the agenda item “prevention of an arms race in outer space”, including draft treaties aimed at, inter alia, preventing the placement of weapons in outer space and prohibiting the use of anti-satellite weapons.

The Office supports intergovernmental bodies engaged in the matter of ensuring peace and security in outer space. These include the Group of Governmental Experts established to consider and make recommendations on substantial elements of an international legally binding instrument on the prevention of an arms race in outer space, including, inter alia, on the prevention of the placement of weapons in outer space; groups of governmental experts carrying out studies in areas such as transparency and confidence-building measures in outer space activities; and the Open-Ended Working Group on Reducing Space Threats through norms, rules and principles for responsible behaviours.

For more information [www.un.org/disarmament](http://www.un.org/disarmament)





## United Nations Office for Disaster Risk Reduction

The United Nations Office for Disaster Risk Reduction (UNDRR) was created in 1999 to ensure the implementation of the International Strategy for Disaster Reduction. UNDRR is part of the Secretariat and it supports the implementation and review of the Sendai Framework for Disaster Risk Reduction adopted by the Third United Nations World Conference on Disaster Risk Reduction on 18 March 2015.

By endorsing the Sendai Framework for Disaster Risk Reduction, the General Assembly mandated UNDRR as the focal point for disaster risk reduction within the United Nations system, advocating and promoting coherence and synergies between disaster risk reduction, climate change and ultimately sustainable development.

In its Work Programme, UNDRR continues to advance Sendai Framework implementation and further integrate disaster risk reduction as an essential component of sustainable development through intergovernmental decision-making and policy-setting.

It is acknowledged that risk-informed strategies and actions need to be anchored on the best available climate and disaster risk analytics. Countries need to ensure that disaster risk reduction strategies are informed by climate projections, and national adaptation plans are risk informed. This is the only way to have the full picture and develop actions that will help avert, minimize and address risk, losses and damages.

For more information [www.undrr.org](http://www.undrr.org)





## United Nations Office on Drugs and Crime

The mission of the United Nations Office on Drugs and Crime (UNODC) is to contribute to global peace and security, human rights and development by making the world safer from drugs, crime, corruption and terrorism. The thematic focus of UNODC is on the world drug problem, organized crime, corruption and economic crime, terrorism and crime prevention and criminal justice.

As part of its research programme, UNODC assists Member States in the monitoring of illicit activities such as illicit crop cultivation, illegal logging and mining. These activities rely heavily on remote sensing techniques and space-based technologies. Since the start of the Illicit Crop Monitoring Programme in 1999, UNODC has processed thousands of satellite images. First by using Landsat and SPOT imagery, but as soon as very high-resolution imagery became available, the programme included these to identify small fields with opium poppy, coca or cannabis used for drug production.

Cars, planes and helicopters equipped with Global Navigation Satellite Systems are used to tag ground truth pictures and to locate production sites. The annual statistics generated for the main producing countries form the base to estimate global opium and cocaine production, to define particular drugs, as well to evaluate alternative development programmes. Geospatial experts at UNODC headquarters and field offices assist in the use of satellite technology.

Images from aerial vehicles have been an important component as an alternative for satellite images, for example in cloudy environments, or to complement monitoring activities that use satellite imagery. Traditionally, planes and helicopters were important means to obtain aerial photos, for example in the case of the Mexico opium surveys and the Nigeria cannabis survey.

In the past years, the use of unmanned aerial vehicles (UAVs or drones) has become an affordable way to collect data to locate and measure illicit activities. Images taken with UAVs equipped with GNSS are easily transformed into useful geographic data, for example to verify operations that try to limit coca cultivation in Bolivia and Colombia.





UNODC also supports research for using drones to take hyperspectral images, for example to detect cannabis and ephedra plants in Central Asia, the latter being a plant used for the production of crystal methamphetamine, a drug increasingly used in the world.

The technology to monitor cultivation with hyperspectral sensors helps to improve the detection of specific drug production varieties, as well as illegal mineral mines. With the expected growth of satellite sensors that include hyperspectral data, this technology has great potential to be applied in monitoring large areas.

For more information [www.unodc.org/unodc/en/crop-monitoring](http://www.unodc.org/unodc/en/crop-monitoring)





## United Nations Office of Legal Affairs

The Office of Legal Affairs (OLA) is the central legal service of the United Nations and performs the following functions:

- (a) Provides legal advice to the Secretary-General, Secretariat departments and offices, funds and programmes and other United Nations organs, including in support of the Organization's efforts to achieve the SDGs as reflected in the 2030 Agenda for Sustainable Development;
- (b) Represents the Secretary-General in legal conferences and in judicial proceedings;
- (c) Performs substantive and secretariat functions for legal organs involved in public international law generally, as well as those involved in the law of the sea and ocean affairs and international trade law; and
- (d) Performs the functions conferred on the Secretary-General in Article 102 of the Charter of the United Nations, in the Statute of the International Court of Justice and in other relevant instruments of international law.

The advice, services and assistance provided by OLA include the preparation of host country agreements and other legal instruments governing the Organization's relations with Member States for United Nations offices, conferences and other events held away from headquarters, the provision of legal advice on the development and implementation of new initiatives and policies of the Organization, and on modalities for partnerships and other forms of cooperation with the private sector, on procurement; and the drafting and negotiation of contracts and other commercial matters. OLA also assists in the provision of support to United Nations organs and conferences on the conduct of business.

OLA discharges the Secretary-General's functions with regard to the multilateral treaties deposited with the Secretariat, including concerning outer space, in particular the Convention on Registration of Objects Launched into Outer Space and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies.

OLA develops and maintains the United Nations Audiovisual Library of International Law, a virtual training and research centre in international law accessible worldwide free of charge, which contains resources on [International] "Law of Outer Space".

[www.un.org/ola](http://www.un.org/ola)





## United Nations Office for Outer Space Affairs

The United Nations Office for Outer Space Affairs (UNOOSA) is an office of the Secretariat that promotes and facilitates peaceful international cooperation in outer space. It works to establish or strengthen the legal and regulatory frameworks for space activities, and assists developing countries in using space science and technology for sustainable socioeconomic development.

UNOOSA is the secretariat of the Committee on the Peaceful Uses of Outer Space, the only committee of the General Assembly dealing exclusively with international cooperation in the peaceful uses of outer space. Its role as a forum to monitor and discuss developments related to the exploration and use of outer space has evolved alongside the technical advancements in space exploration, geopolitical changes and the evolving use of space science and technology for sustainable development. The mandate also specifies that the Committee should support efforts at the national, regional and global levels, including those of entities of the United Nations system and international space-related entities, to maximize the benefits of the use of space science and technology and their applications. UNOOSA is also the secretariat of UN-Space, an inter-agency mechanism of the United Nations that meets and discusses matters related to the use of space technologies in their activities.

UNOOSA implements the United Nations Programme on Space Applications. Since its creation in 1971, the Programme has made substantial progress in furthering knowledge and experience of space applications around the world. Provision of country capacity-building, education, research and development support and technical advisory services by the Programme have all helped to reduce the gap between industrialized and developing countries.

UNOOSA also implements the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER), established by the General Assembly through its resolution 61/110 of 14 December 2006. The mandate of UN-SPIDER is to enable developing countries to use all types of space-based information in all phases of the disaster management cycle including prevention, preparedness, early warning, response and reconstruction. It develops solutions to address the limited access of developing countries to specialized technologies essential in the management of disasters





and the reduction of disaster risks. It also facilitates cooperation between satellite data and information providers and the different groups of users of such data, such as policymakers, disaster risk managers or emergency responders. The Knowledge Portal of UN-SPIDER is a hub for pertinent information, links and resources. Through its tailor-made technical advisory support, UN-SPIDER assesses the individual potential of a country, makes specific recommendations and carries out specialized training courses for government staff. Additionally, through its conferences, workshops and expert meetings, it brings together relevant stakeholders from both the space and the disaster communities in order to foster an exchange of innovations and experiences.

The Office works to help all countries, especially developing countries, access and leverage the benefits of space to accelerate sustainable development. It also works with space agencies and space leaders around the world to devise solutions to challenges that require an international response. In recent years the Office has conducted a variety of outreach, awareness-raising and capacity-building activities. The Office helps to link space and climate experts with decision makers through workshops and symposiums organized directly by the Office or co-organized with partners.

For more information [www.unoosa.org](http://www.unoosa.org)





## United Nations Platform for Space-Based Information for Disaster Management and Emergency Response

The United Nations Platform for Space-Based Information for Disaster Management and Emergency Response (UN-SPIDER) was established in 2006 under the aegis of the United Nations Office for Outer Space Affairs (UNOOSA). The Platform develops solutions to address the limited access developing countries have to specialized technologies that can be essential in the management of disasters and in reducing disaster risks.

UN-SPIDER aims at improving actions to reduce disaster risk or support disaster response operations through knowledge-sharing and the strengthening of institutions in the use of space technologies in all phases of the disaster management cycle, including prevention, preparedness, early warning, response and reconstruction. UN-SPIDER also facilitates cooperation between satellite data and information providers and the different groups of users of such data, such as policymakers, disaster risk managers and emergency responders. The objective is a better flow of information on disaster risks or disaster impacts between all stakeholders and affected populations.

The UN-SPIDER Knowledge Portal is a hub for pertinent information, links and resources.

Jointly with its network of international partners, UN-SPIDER builds the capacities of developing countries to access and use space technologies. Through its tailor-made technical advisory support, UN-SPIDER assesses the individual potential of a country, makes specific recommendations and carries out specialized training courses for government staff. Additionally, through its conferences, workshops and expert meetings, UN-SPIDER brings together relevant stakeholders from both the space and the disaster management communities in order to foster an exchange of innovations and experiences.

For more information: [un-spider.org](http://un-spider.org)





## United Nations Satellite Centre

The United Nations Satellite Centre (UNOSAT) is part of the United Nations Institute for Training and Research, with a mandate to provide United Nations funds, programmes and agencies with satellite analysis, training and capacity development, at their request, as well as to support Member States with satellite imagery analysis over their respective territories and to provide training and capacity development in the use of geospatial information technologies.

Since 2001, UNOSAT has provided the United Nations system with access to satellite imagery and satellite-derived analysis through the development and provision of Earth observation and GIS applications. The programme has spearheaded the use of these technologies in various fields of application, namely for emergency response, disaster risk reduction, peace and security, but also for the protection of cultural heritage and the monitoring and evaluation of development projects. Since 2005, UNOSAT also provides training and capacity development activities, for humanitarian relief and human security, human rights, crisis management and prevention, recovery and development, in alignment with its commitment towards supporting the SDGs.

These activities serve a central vision: the promotion of evidence-based decision-making for peace, security and resilience. The goal of UNOSAT is thus to make satellite solutions and geographic information easily accessible to the United Nations family and experts worldwide, with a professional commitment to producing concrete, tangible and usable results in every activity.

The increase in disaster occurrences and the high numbers of victims resulting from such events are urgent issues that require effective and rapid action. Through its Humanitarian Rapid Mapping service, UNOSAT has brought the power of satellite imagery analysis to various disaster management authorities since 2003. With a 24/7 year-round availability to process requests, the team of experienced analysts ensure timely and tailored delivery of satellite imagery derived maps, reports and data ready for direct inclusion in geographic information systems for evidence-based decision-making and operational planning.





The ability of national and regional authorities to seamlessly collect, integrate and analyse geospatial information in a comprehensible and easy to use format is key to enhancing their climate resilience. Thanks to its extensive data library, UNOSAT was able to design, develop and deploy deep learning models applied to satellite imagery for humanitarian assistance and disaster response. Currently operational for flood events, the UNOSAT AI pipeline focuses on a specific area and collects, processes and analyses imagery automatically, with minimal human intervention. So far, it has been deployed for several activations in countries such as Bangladesh, Malawi, Mozambique, Nepal and Thailand. A dedicated Flood AI Dashboard was developed to monitor the flood situation and provide up-to-date, satellite-derived information. Evidence-based information provided by UNOSAT was useful to support flood response operations, as humanitarian access to the affected areas was critical. A UNOSAT Flood AI Dashboard was deployed later to monitor the floods caused by the monsoon season.

Strengthening national and regional capacities is highly important to enhance disaster and climate resilience. For example, through a project funded by the Norwegian Agency for Development Cooperation (NORAD), UNOSAT provides capacity development activities and tailored technical solutions integrating Earth observation technologies to improve disaster risk management and access to climate finance for countries in the Asia-Pacific region and Africa. This project builds on previous projects to leverage geospatial information technologies for disaster risk reduction, climate resilience, environmental preservation and food security.

For more information <https://unosat.org>





## United Nations University

The United Nations University (UNU) is the think tank and academic arm of the United Nations. Headquartered in Japan, its mission is to help resolve global issues related to human development and welfare through collaborative research and education.

Since 2010, UNU has been authorized by the General Assembly to grant postgraduate degrees, offering several master's and doctoral programmes. The university's research officially prioritizes three thematic areas: peace and governance; global development and inclusion; and environment, climate and energy. UNU also facilitates United Nations engagement with academic institutions and policymakers around the world, in part through campuses, programmes and affiliated institutes spanning 12 countries.

As knowledge partners within the United Nations system, UNU connects diverse international stakeholders to generate and share research with a broad spectrum of the public. UNU translates this research into evidence-based policy recommendations and delivers it to those who can drive positive change, seeking to ensure that policy works for people, locally and globally. UNU further promotes knowledge creation and exchange through education and capacity-building programmes.

The 2020–2024 UNU Strategic Plan includes the following four overarching objectives: pursuing policy-relevant programming; investing in a dynamic, innovative and diverse institutional culture; strengthening collaboration, communications and visibility; and striving for financial sustainability across the architecture of UNU.

For more information <https://unu.edu>





## World Health Organization

The World Health Organization (WHO) was established on 7 April 1948. WHO is a specialized agency of the United Nations responsible for international public health. The WHO Constitution states its main objective as “the attainment by all peoples of the highest possible level of health”. Headquartered in Geneva, Switzerland, it has six regional offices and 150 field offices worldwide.

In 2022, WHO launched its Geographic Information Systems (GIS) Centre for Health to advance the use of spatial representation of data to support better public health planning and decision-making.

By connecting maps, apps, data and people, the WHO GIS Centre is dedicated to supporting countries and partners to make informed public health decisions faster and to extend the reach of geospatial information across the organization. By continuing to expand its collaboration with partners, the WHO GIS Centre aims at bridging inequalities within and across countries.

Specific services include: supporting geospatial data and analytics to improve compliance and stewardship with WHO standard operating procedures for maps and web GIS applications; increasing the efficient use of GIS by Member States and partners; strengthening country and regional data, analytics and making the health information system more robust; augmenting timely assistance and expertise through a network of United Nations agencies and trusted geospatial partners; and promoting a GIS community of practice through providing training and technical expertise in innovative technology.

For more information [www.who.int](http://www.who.int)





## World Meteorological Organization

Established in 1950, the World Meteorological Organization (WMO) became the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences in 1951. It originated from the International Meteorological Organization, which was founded in 1873. Today, WMO is the United Nations system's authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources. WMO has a membership of 193 Member States and territories.

The WMO Space Programme coordinates activities across all of WMO programmes relating to the use of meteorological satellites to promote the availability and utilization of satellite data and build related capacity for weather, climate, water and related applications. This is achieved by promoting remote sensing techniques to advance meteorology, hydrology, oceanography and space weather applications; ensuring effective cooperation with and among international partners and organizations dealing with satellite systems in the meteorological area; and coordinating WMO activities related to space weather monitoring.

The development of the Global Framework for Climate Services became a major milestone in the work of WMO. In that context, space-based observations had an essential role to play in the four priority areas identified among climate application services, namely, health, agriculture and food security, water and disaster risk reduction.

For more information <https://public.wmo.int/en>





## ACRONYMS AND ABBREVIATIONS

ECA	Economic Commission for Africa
ECLAC	Economic Commission for Latin America and the Caribbean
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
FAO	Food and Agriculture Organization of the United Nations
IAEA	International Atomic Energy Agency
ITU	International Telecommunication Union
OLA	Office of Legal Affairs of the United Nations Secretariat
UNDRR	United Nations Office for Disaster Risk Reduction
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN-GGIM	United Nations Committee of Experts on Global Geospatial Information Management
UNOCC	United Nations Operations and Crisis Centre
UNODA	United Nations Office for Disarmament Affairs
UNOSAT	United Nations Satellite Centre
UNOOSA	United Nations Office for Outer Space Affairs
UNODC	United Nations Office on Drugs and Crime
UN-Habitat	United Nations Human Settlements Programme
UN-Space	United Nations Inter-Agency Meeting on Outer Space Activities
UN-SPIDER	United Nations Platform for Space-Based Information for Disaster Management and Emergency Response
UNU	United Nations University
WHO	World Health Organization
WMO	World Meteorological Organization



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**BRINGING THE BENEFITS  
OF SPACE TO HUMANKIND**

The United Nations Office for Outer Space Affairs (UNOOSA) is responsible for promoting international cooperation in the peaceful uses of outer space and enhancing capacities of developing countries in using space science, technology and applications for sustainable development.