

Report

Networking Session: Bridging the Gap: Linking the space and the disaster management communities

ESA Living Planet Symposium

Bonn, Germany
25 May 2022

Abstract

From 23 to 27 May 2022, the European Space Agency carried out its Living Planet Symposium in the World Conference Centre in Bonn, Germany. The symposium attracted more than 4,000 participants from Europe and other regions of the world. The German Aerospace Centre (DLR) and the UN-SPIDER programme of the United Nations Office for Outer Space Affairs (UNOOSA) joined forces to organize a Networking Session during the symposium to bring together experts and participants to discuss ways to use the solutions developed by the space community and to identify challenges in developing countries that inhibit the use of such solutions. The networking session included technical presentations by DLR, the Centre for Remote Sensing of Land Surfaces of the University of Bonn (ZFL) and UN-SPIDER, as well as a discussion session with participants.

Presentation summaries

The expert from UN-SPIDER made participants aware that the programme advocates for the use of space-based information in disaster management efforts and provides technical advisory support to the disaster management community in developing countries to facilitate the use of this type of information.

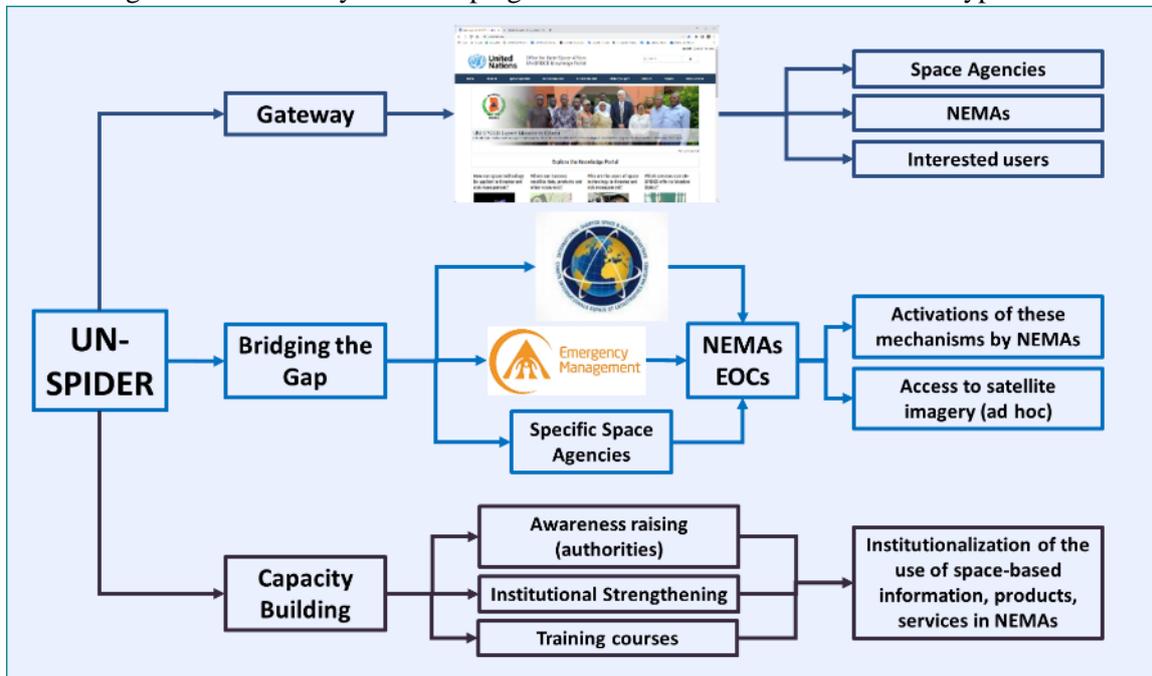


Figure 1: Overall approach of UN-SPIDER to promote the use of space-based information in disaster management applications.

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The programme has established its UN-SPIDER Knowledge Portal as a gateway to space-based information and through this portal, it reached stakeholders from the disaster management and the space community as well as from other communities. The programme bridges the gap between the space community and the disaster management community through a variety of efforts, including promoting the use of emergency mechanisms such as the International Charter Space and Major Disasters and the Copernicus Emergency Management Service. With the support of experts from its 26 Regional Support Offices, the programme strengthens the capacity of the disaster management community through different types of missions, including training courses.

UN-SPIDER used the opportunity to provide information on examples of approaches used to facilitate the use of data, services, and products developed by the space community; including the use of satellite imagery, the use of the Global Flood Awareness System (GLOFAS) from the Copernicus programme and products such as digital elevation models offered by Airbus Defence and Space.

The expert from DLR briefed participants on the Center for satellite-based crisis information (ZKI), which was established by DLR more than a decade ago. She commented that Earth Observation data such as satellite or aerial imagery and geo data is acquired and analysed at ZKI to generate up-to-date situational awareness information before, during or after a disaster or in case of major events. It focusses on research and development at national and international levels in the fields of disasters triggered by natural hazards, humanitarian relief, civil security and has long-term experience in demand-driven crisis mapping. In this role, it facilitates the cooperation among researchers and humanitarian users. ZKI it is actively involved in

several projects of the Humanitarian Technology Initiative, which fosters the transfer of DLR technology to be used by humanitarian organisations. These technologies cover Artificial Intelligence approaches, the use of web data, the automatisisation of data interfaces and the provision of web-viewing tools.

Figure 2: DLR expert addressing participants during the networking session.



The expert from the Center of Remote Sensing of Land Surfaces (ZFL) of the University of Bonn presented a project being implemented together with DLR that targets the strengthening of the use of Copernicus services, datasets and products for disaster risk reduction and disaster management in African countries. He commented that the project is funded through the European Commission's Framework Programme for Copernicus User Uptake.

Participants noted that the project team is preparing training materials and guidelines on how to use different methods, datasets and services. He also commented that the project team has exchanges with different (potential) African users, e.g. from space agencies, disaster management authorities and academia. The project is carried out in close collaboration with UN-SPIDER and is also meant to support and be linked to UN-SPIDER events in 2022 and 2023 through different training activities. All developed materials will be made available through the UN-SPIDER Knowledge Portal and other suitable channels.

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Figure 3: The expert from ZFL addressing participants during the networking session.



Discussion

To initiate the discussion, UN-SPIDER shared information with participants on some of the lessons learned when promoting the use of space technologies in developing countries. He commented on several challenges that the programme faces when promoting the use of space technologies in disaster management, including:

- Other regional and international organizations are implementing very similar efforts (CEOS, GEO, GMES&Africa, Africa Risk Capacity, Copernicus Programme, etc.)
- Similar procedures are being developed by different organizations using the same tools (Google Earth Engine).
- There is limited internet bandwidth in some developing countries.
- There is a difficulty to easily access commercial submeter resolution imagery for disaster management and other expert entities on the ground in countries affected.
- There is a need to management the changing of staff at times.
- The space community is developing many solutions and tools, but it is difficult for disaster management agencies to change tools frequently.
- Analysis-ready solutions may not be appealing to those professionals in developing countries with skills in remote sensing and GIS, as they may wish to generate their own products to be used in their national disaster management agencies.

Several participants from the audience also raised the challenge of the difficulty of accessing space-based information posted in long links, particularly when disasters impact communication technologies and reduce the internet bandwidth. This led to the suggestion for the space community to work more closely with disaster managers responding in case of disasters, on the usefulness of research and on the use of novel types of solutions. There were additional discussions on upcoming rapid mapping efforts by Copernicus, and on the challenges that the International Charter Space and Major Disasters faces related to the interactions between end-users and project managers.

Other participants noted the challenge of discovering the needs from end-users to develop tools and build capacities. The suggestion was made to carry out simulations of events so that the disaster management community can identify potential needs which can be addressed by the space community.