THE CENTRE PROVIDES SPACE BASED INFORMATION TO NATIONAL / PROVINCIAL DISASTER MANAGEMENT AGENCIES TO RAPIDLY ASSESS THE EXTENT OF NATURAL DISASTERS AND DAMAGES TO HUMAN LIVES, PROPERTY AND INFRASTRUCTURE.

THE CENTRE ALSO PROVIDES ASSISTANCE TO REGIONAL COUNTRIES IN CASE OF NATURAL DISASTERS.

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The International Charter aims at providing a unified system of space data acquisition and delivery to those affected by natural or man-made disasters through Authorized Users.

On Behalf of NDMA, SUPARCO has been registered with Charter as Authorized User (AU).

SUPARCO is host to UN-SPIDER Regional Support office in Pakistan.

SUPARCO is also Member of JPT-3 project of Sentinel Asia and is registered as Data Analysis Node (DAN).
During Natural Disasters, SUPARCO provided technical support to various national Organizations NDMA, PDMAs and International Agencies ICIMOD, UN-FAO etc
DISASTERWATCH platform
MIRPUR EARTHQUAKE, 24 SEP 19

INTENSITY MAP

An earthquake of 5.8 magnitude with 10 km depth struck Mirpur and Northern areas of Pakistan on 24 Sep 2019 at 1602 hrs. The epicenter was located at Khari Sharif, District Mirpur. This map shows the epicenter and instrumental intensity of the earthquake. The instrumental intensity represents the ground shaking, recorded by seismic instruments.

This map is generated at Space Applications Centre for Response in Emergency & Disasters (SACRED) - SUPARCO on 24 Sep 2019.
MIRPUR EARTHQUAKE, 24 SEP 19
RAPID DAMAGE ASSESSMENT – PRSS/PLEIADES
MIRPUR EARTHQUAKE, 24 Sep 19
RAPID DAMAGE ASSESSMENT – TERRA SAR-X
MIRPUR EARTHQUAKE, 24 SEP 19
CO-SEISMIC DISPLACEMENT MAP – SENTINEL 1

An earthquake of 5.8 magnitude with 10 km depth struck Mirpur and Northern areas of Pakistan on 24 Sep 2019 at 1602 hrs. The epicenter was located at Khari Sharif, District Mirpur. This map shows the Line of Sight (LoS) ground displacement extracted from SAR interferogram. The positive and negative LoS values indicate the ground uplift and subsidence phenomena, respectively. The interferogram is generated using pre-post pair of Sentinel-1 Single Look Complex data acquired on 16 Sep and 28 Sep 2019, respectively.

This map is generated at Space Applications Centre for Response in Emergency & Disasters (SACRED) -SUPARCO on 02 October 2019.
MIRPUR EARTHQUAKE, 24 SEP 19
INTERNATIONAL CHARTER ACTIVATION

Charter activations

26 SEPTEMBER 2019
Earthquake in Pakistan

Type of Event: Earthquake
Location of Event: Pakistan
Date of Charter Activation: 2019-09-26
Time of Charter Activation: 11:15
Time zone of Charter Activation: UTC+02:00
Charter Requestor: UNITAR/UNOSAT on behalf of UNOCHA
Activation ID: 622
Project Management: UNOSAT
Pre-Monsoon Activities 2020

- Extraction of the pre-monsoon layer of all major rivers and water bodies – June 30, 2020
- Preparation/Updation of the spatial datasets i.e. Landcover, Crop, Road, Settlements etc for rapid mapping and damage assessment – 30 April 2020
- Preparation of the pre-monsoon satellite imagery (Rivers and Hot spots) – 30 April 2020
- Satellite programming for rivers and dams monitoring - June 30, 2020
- HR Deployment Plan – 30 April 2020
• Near Real time monitoring of Rivers and Dams
• Near Real time monitoring of Hot spots
• Rapid Inundation Mapping
• Rapid Damage Assessment (Crop and Infrastructure)
• Detail Damage Assessment (Crop and Infrastructure)
• Monitoring of Rehabilitation and Reconstruction Work in flood affected areas
• Near real time information provided in the form of exposure, damage maps and stats via DisasterWatch (disasterwatch.sgs-suparco.gov.pk)
Nai Gaj Dam Breach, Dadu – 09 Aug 20
Kachhi flash flooding – 14 Aug 20
RIVER CHENAB FLOOD – 29 AUG 20
GLOF EVENT - GOLAIN

Pre Event – 14 Oct 2018

Post 1st GLOF – 19 July 2019

Post 2nd GLOF – 23 July 2020

Golan Gol River

Debris

Golan Gol Power Plant

GLOF Source
MONITORING OF SHISHPAR GLACIER

Mochohwar Glacier

Shishpar Glacier

Glacier Terminus Movement

Satellite: Sentinel 2
DESERT LOCUST MONITORING

25 May - 15 June, 2020

Suitability of Habitat
- Most
- Moderate
- Normal
- Less
- Least

Settlements
- Provinces
- Cities
- Roads

Map showing various locations such as Badinai, Loi Band, Killa Saifullah, Badinai, Ziarat, Sinjawi, Loralai, and South Toi Khulla Waziristan.
NatCat Model will provide quantitative information on the expected levels of loss for natural hazards events of varying types, intensities, and return periods.

The scope of work includes:

- Development of Database and Web Application
- Hydro-meteorological Hazard Assessment (Flood, Drought, Cyclone)
- Geo-physical Hazard Assessment (Seismic)
- Exposure of Landcover, Crops and Infrastructure to Hydro-meteorological and Geo-physical Hazards
- Loss and Risk Assessment Model for Hydro-meteorological and Geo-physical Hazards
- Integrated Risk Assessment
CONTRIBUTION IN UN-SPIDER ACTIVITIES

Webinar on space-based inputs for locust early warning and preparedness

Event Organisers:
United Nations Office for Outer Space Affairs through its UN-SPIDER programme and the International Water Management Institute

Date:
12/06/2020

Registration Deadline:
Wednesday, June 10, 2020

Event website:
[Virtual link]

Description:
On 12 June, United Nations Office for Outer Space Affairs (UNOOSA) through its UN-SPIDER programme and International Water Management Institute (IWMI) will be hosting a webinar on “Space-based inputs for Locust early warning and preparedness” as a commitment to promote the use of space technology in combating a pest that is resulting as top of the COVID-19 crisis.

The webinar will take place at 10:30-11:30am Vienna, Austria time (UTC+2). Registrations are open until 11:30pm Vienna, Austria time (UTC+2) on 10 June.

During the last 90-minute session, experts from UNOOSA, IWMI, India, Pakistan as well as from other international organisations, governments and private agencies will discuss how space applications can strengthen the monitoring and early warning efforts to prevent the locust outbreak in future.

The recording of the webinar is available online.

Background on current locust impact globally

Locusts are an enduring threat to food security and the safety of populations across the globe, with recent outbreaks causing widespread damage to food production and livelihoods. The current outbreak is the largest since the 1980s, affecting 50 countries in Africa and the Middle East, and impacting more than 60 million people. The impact of locusts on local economies and food security is significant, leading to malnutrition and health problems.

Space technology, including satellite data, offers a number of tools to study the locust cycle and predict future outbreaks. By monitoring changes in vegetation and land use patterns, space technology can help track the movement of locusts and support decision-making efforts to mitigate the impact of these pests. The Webinar will provide an overview of how space technology can be used to support decision-making in the fight against locusts, including case studies from around the world.

Results

By using the latest information from UN-SPIDER, the webinar will discuss how space technology can be used to support decision-makers in the fight against locusts. The webinar will also highlight the importance of international cooperation in combating this global threat and provide insights into the future use of space technology in locust control.
RECOMMENDED PRACTICES FOR UN-SPIDER KNOWLEDGE PORTAL

FLOOD HAZARD ASSESSMENT

FLOOD MAPPING AND DAMAGE ASSESSMENT

DROUGHT HAZARD ASSESSMENT
Effective use of Space-based information to monitor disasters and its impacts

Lessons Learnt from Floods in Pakistan

prepared by SUPARCO, Pakistan
WAY FORWARD

- Capacity building on Flood Hazard Mapping via MOOC
- Recommended practice of Landslide susceptibility mapping.
- Participation in TAMs
- SUPARCO can provide Resource persons for Flood Modeling trainings
- Capacity Building in the field of SAR data processing and analysis for Disaster monitoring, mapping and damage assessment particularly for earthquake and landslide
- Participation in regional Collaborative projects