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Office for Outer Space Affairs

SPACE4SDGS

Learning resources and advisory services for drought management and response

From

United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)

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Space technologies for Drought monitoring

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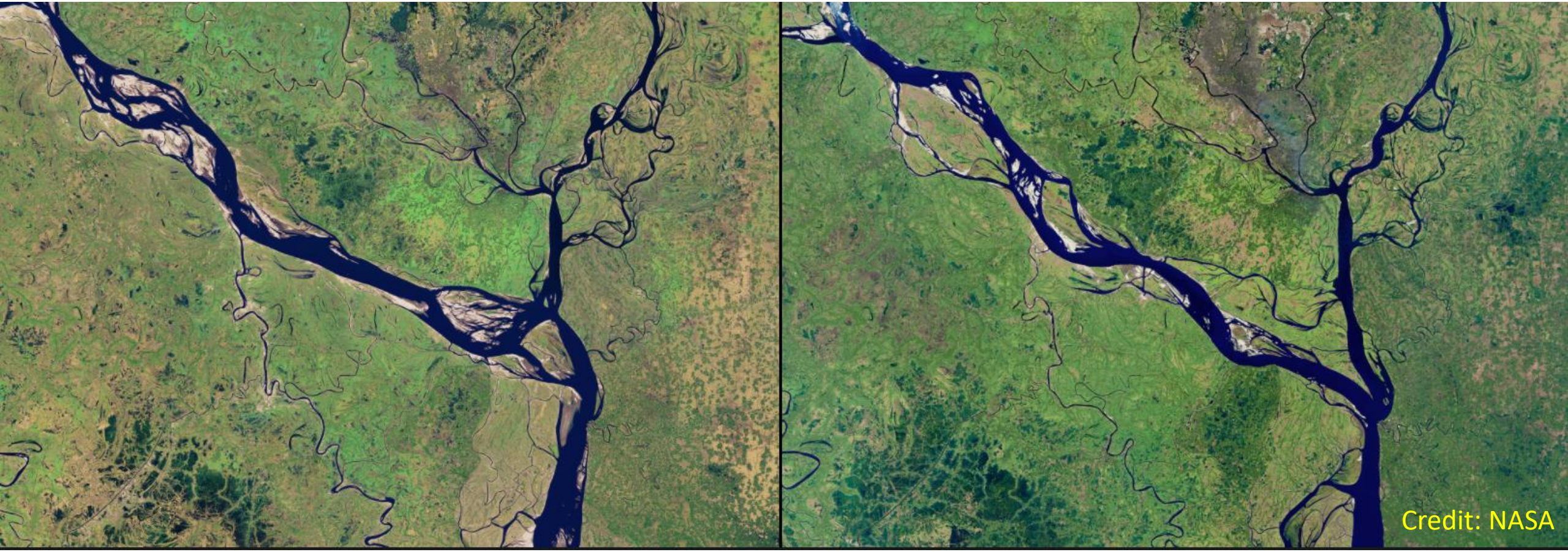
Earth observation

Satellite meteorology

Global Navigation Satellite Systems (GNSS)

Satellite communication



Changeable Padma river in Bangladesh, 2000-2008

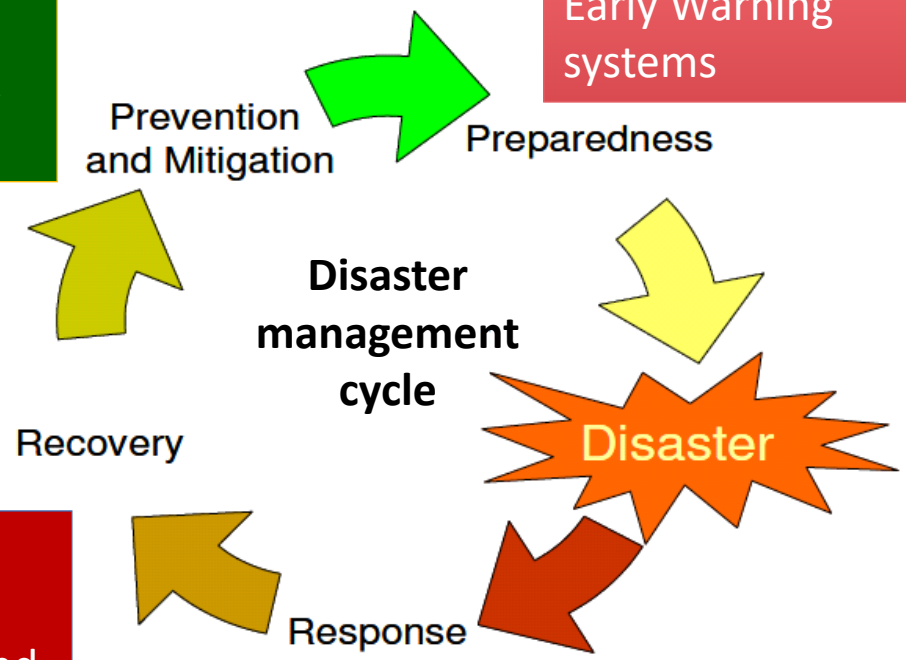
United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)

Ensure that all countries have access to and develop the capacity to use all types of space-based information to support the full disaster management cycle

United Nations Resolution 61/110, Dec. 2006

Geoinformation for
Hazard, exposure, vulnerability, and risk assessment

Geoinformation for
Early Warning systems



Geoinformation for
Post Disaster Needs Assessment / Damage and Loss Assessment

Geoinformation for
Rapid mapping: Extent and impact

Assistance in building disaster resilience

- Policy-relevant advice during Technical Advisory Missions
- Incorporating space-based technologies in National DRR strategies
- Developing specific tools
- Providing access to Earth observation data

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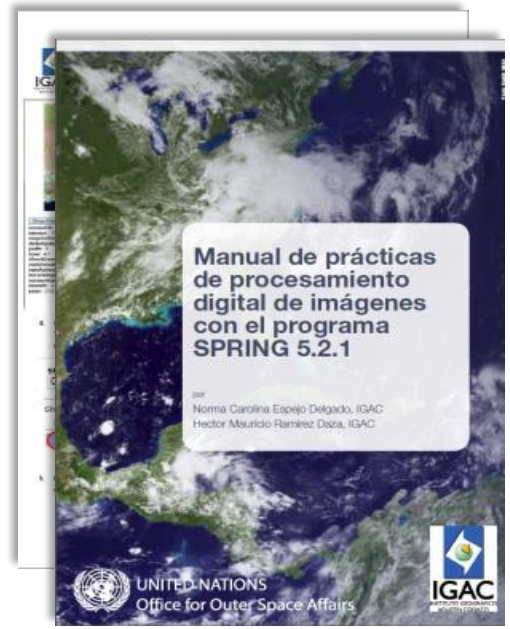
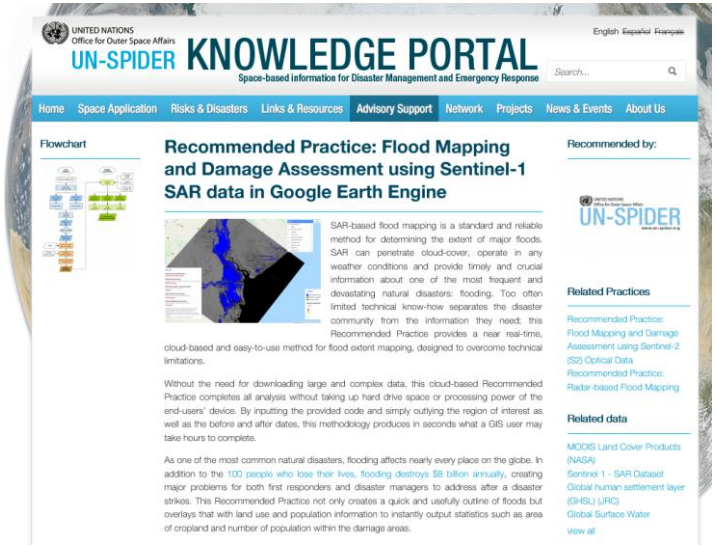
Capacity-building and institutional strengthening

- Training courses on the use of Earth observation in disaster management:
- Procedural guidelines
- Recommended Practices
- Massive open online courses





UN-SPIDER as Capacity Builder

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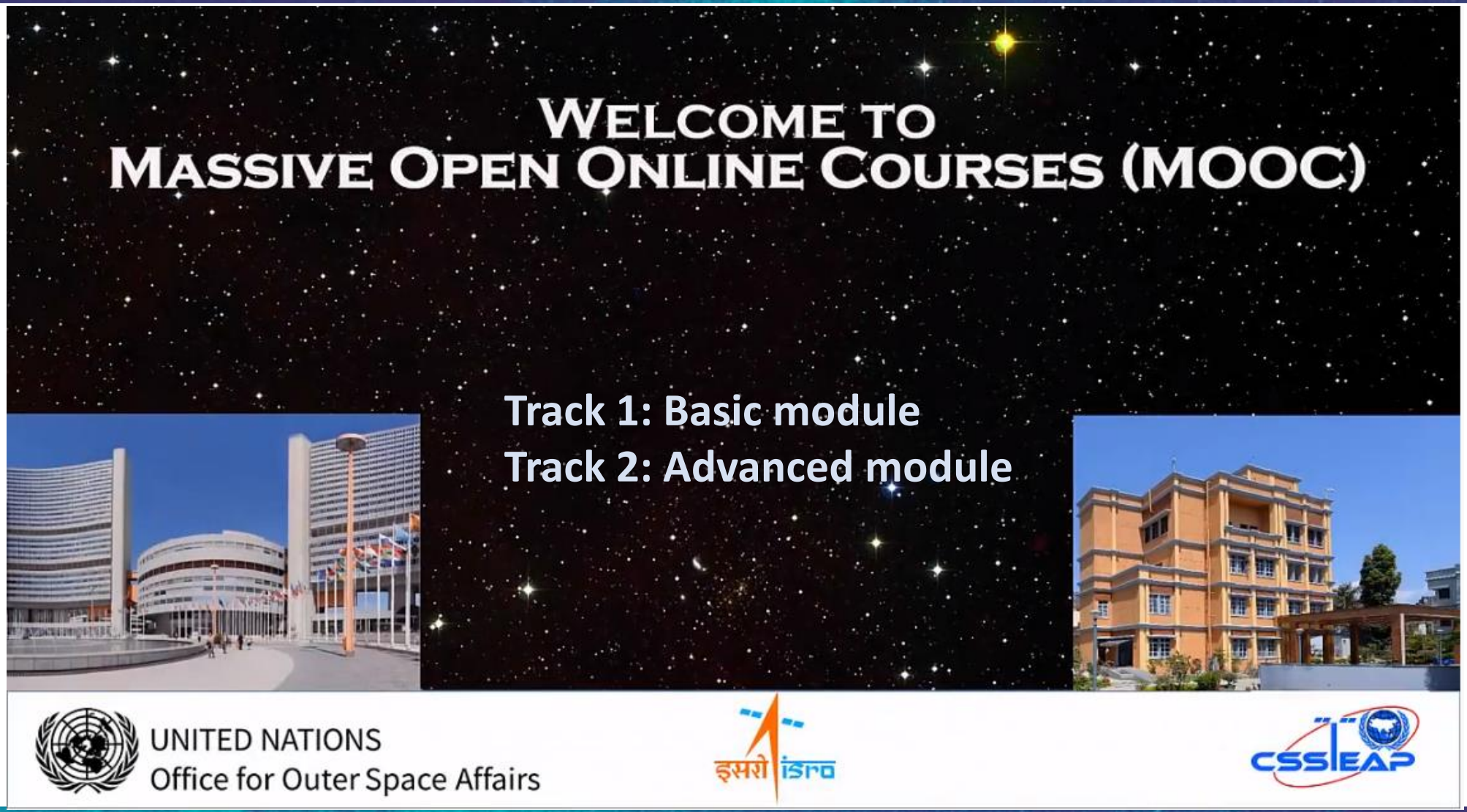


MOOC: Geospatial Applications for Disaster Risk Management

Sessions by experts from 16 organisations

1. United Nations Office for Outer Space Affairs (UNOOSA), Austria
2. Centre for Space Science and Technology Education for Asia and the Pacific (Affiliated
3. to the United Nations), India
4. UN Economic and Social Commission for Asia and the Pacific (ESCAP)
5. Indian Space Research Organization
6. German Aerospace Center (DLR)
7. Joint Research Centre, Italy
8. International Water Management Institute (IWMI), Sri Lanka
9. Delta State University, United States of America
10. University of Salzburg, Austria
11. Ruhr-University Bochum (RUB), Germany
12. Central Building Research Institute (CBRI), India
13. Maxar Technologies, Singapore
14. Indian Meteorological Department (IMD), India
15. Indonesian National Institute of Aeronautics and Space (LAPAN), Indonesia
16. Vasundharaa Geo Technologies, India

MOOC: Geospatial Applications for Disaster Risk Management

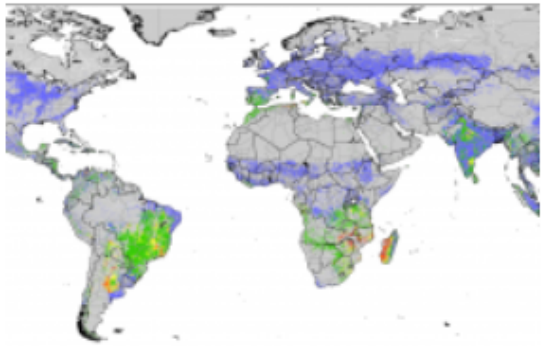
29,727 persons from 104 countries participated in the **Phase I** of the MOOC
11,892 participants successfully completed

Phase II is Open – Free and Self-paced learning

Please register at

https://isat.iirs.gov.in/mooc.php

Data application of the month: Drought monitoring



Agricultural Stress Index (Image: FAO)

What is drought monitoring used for?

Droughts develop gradually; they are referred to as slow-onset natural hazards. Droughts often do not get any global attention until they trigger a famine or cause wildfires. Unfortunately, response to droughts is too often reactive in terms of crisis management. According to WMO droughts are by far the most damaging of all natural disasters because of their long-term socio-economic impacts. Early detection of droughts is important for managing emerging crop losses to prevent or mitigate possible related famines, and for dealing with increased fire risk. Satellite imagery helps to monitor precipitation, soil moisture, and vegetation health to support drought early warning systems. It is used to feed monthly drought bulletins and to issue warnings.

How are droughts monitored from Space?

Meteorological droughts are defined by rainfall deficiency over an extended period of time. Meteorological droughts can turn into **agricultural droughts**, which are characterized by a soil water deficiency and subsequent plant water stress and reduced yield. Agricultural droughts can then turn into **hydrological droughts**, which refer to deficiencies in surface and subsurface water supplies. The different drought definitions imply that several parameters are used to monitor drought: precipitation, temperature, evapotranspiration, soil moisture, and vegetation. These parameters can be observed from space.

Recommended practices on Drought

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Drought monitoring using the Standard Vegetation Index (SVI)

[Recommended Practice: Drought monitoring using the Standard Vegetation Index (SVI) | UN-SPIDER Knowledge Portal]

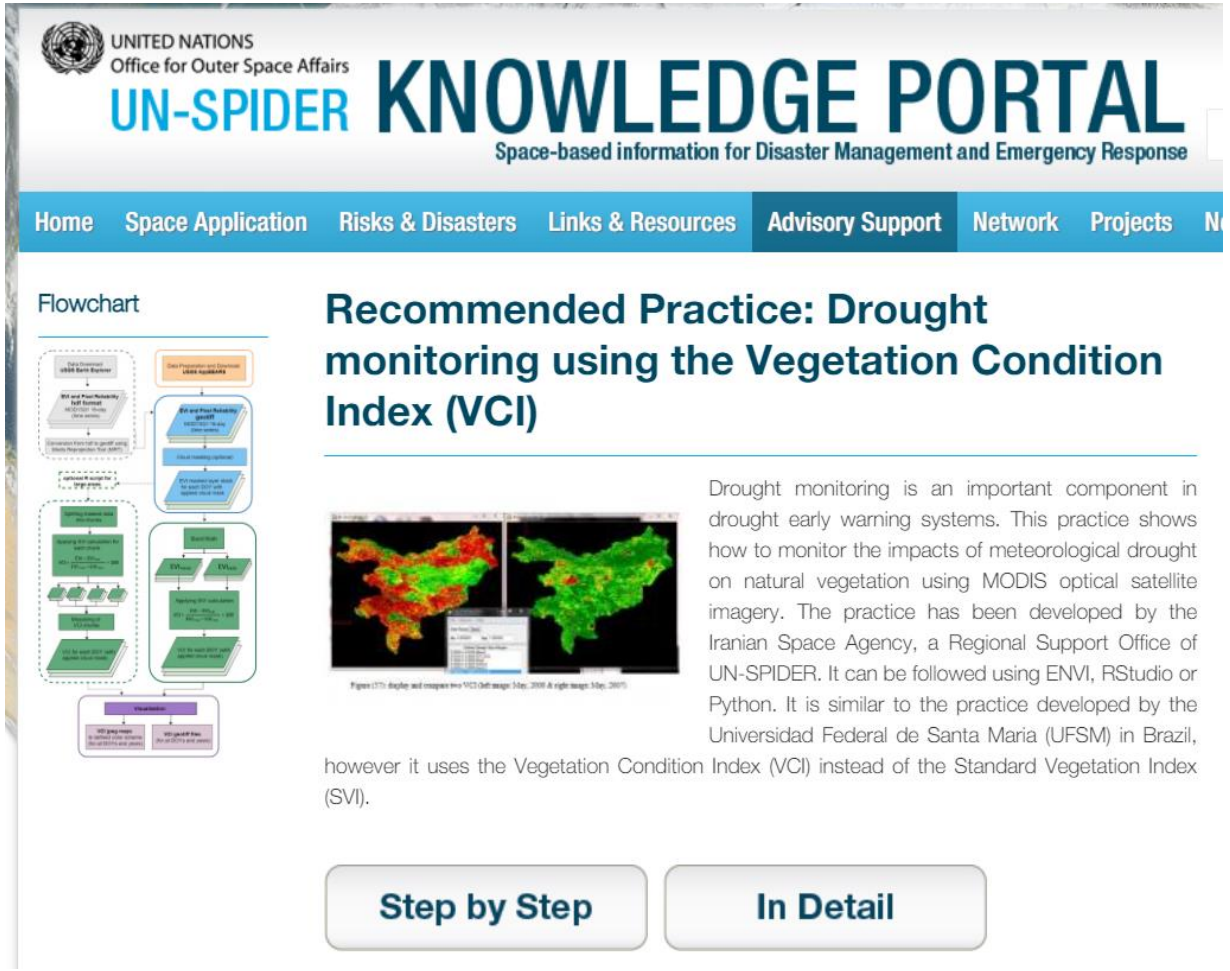
Drought monitoring using the Vegetation Condition Index (VCI)

[Recommended Practice: Drought monitoring using the Vegetation Condition Index (VCI) | UN-SPIDER Knowledge Portal]

Drought monitoring using the Standardized Precipitation Index (SPI)

[Recommended Practice: Drought monitoring using the Standardized Precipitation Index (SPI) | UN-SPIDER Knowledge Portal]

Google Earth Engine, R Studio, Envi software, and in the format of Jupyter notebooks



UN/Iran Workshop

Registration before: Sunday, August 1, 2021

https://un-spider.org/news-and-events/events/united-nationsislamic-republic-iran-workshop-space-technology-applications

Long-term training opportunities

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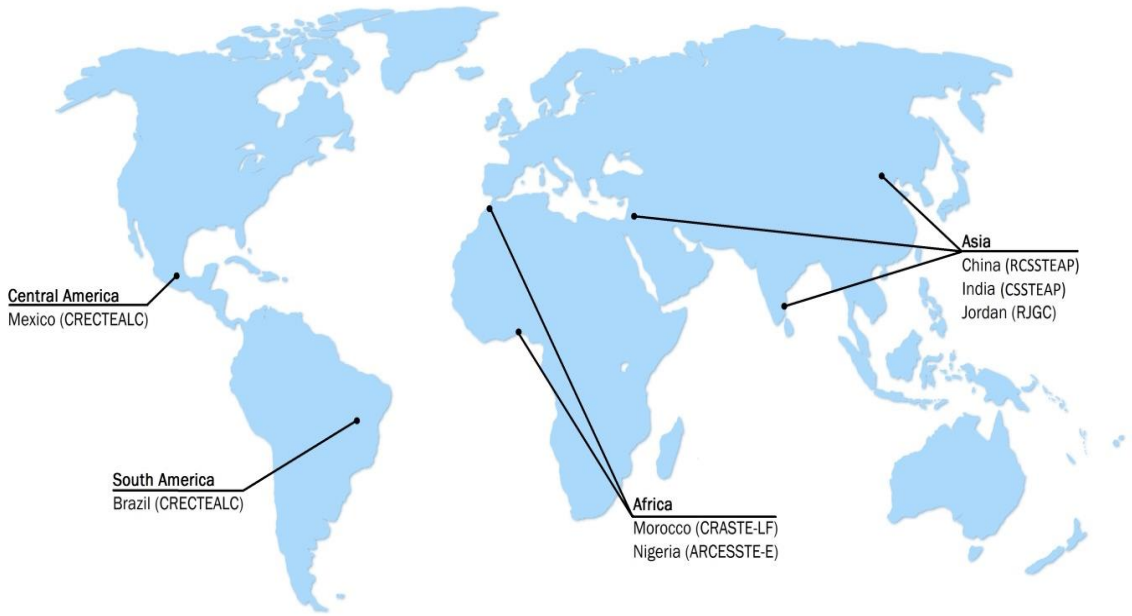
REGIONAL CENTRES FOR SPACE SCIENCE AND TECHNOLOGY EDUCATION (AFFILIATED TO THE UNITED NATIONS)



Post graduate diploma and master courses in

- Remote Sensing and GIS
- Satellite communication
- Satellite navigation
- Satellite meteorology
- Space law

Short course on specific themes

Financial support offered

Supporting emergency response

- Enabling the National Disaster Management Agencies
- Facilitate access to pre and post event earth observation images
- Rapid response mapping

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Thank you

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