BOOSTING CLIMATE MONITORING APPLICATIONS: THE SPACE FOR CLIMATE OBSERVATORY

UN/AUSTRIA SYMPOSIUM 2022, SPACE AND CLIMATE ACTION

13/09/2022

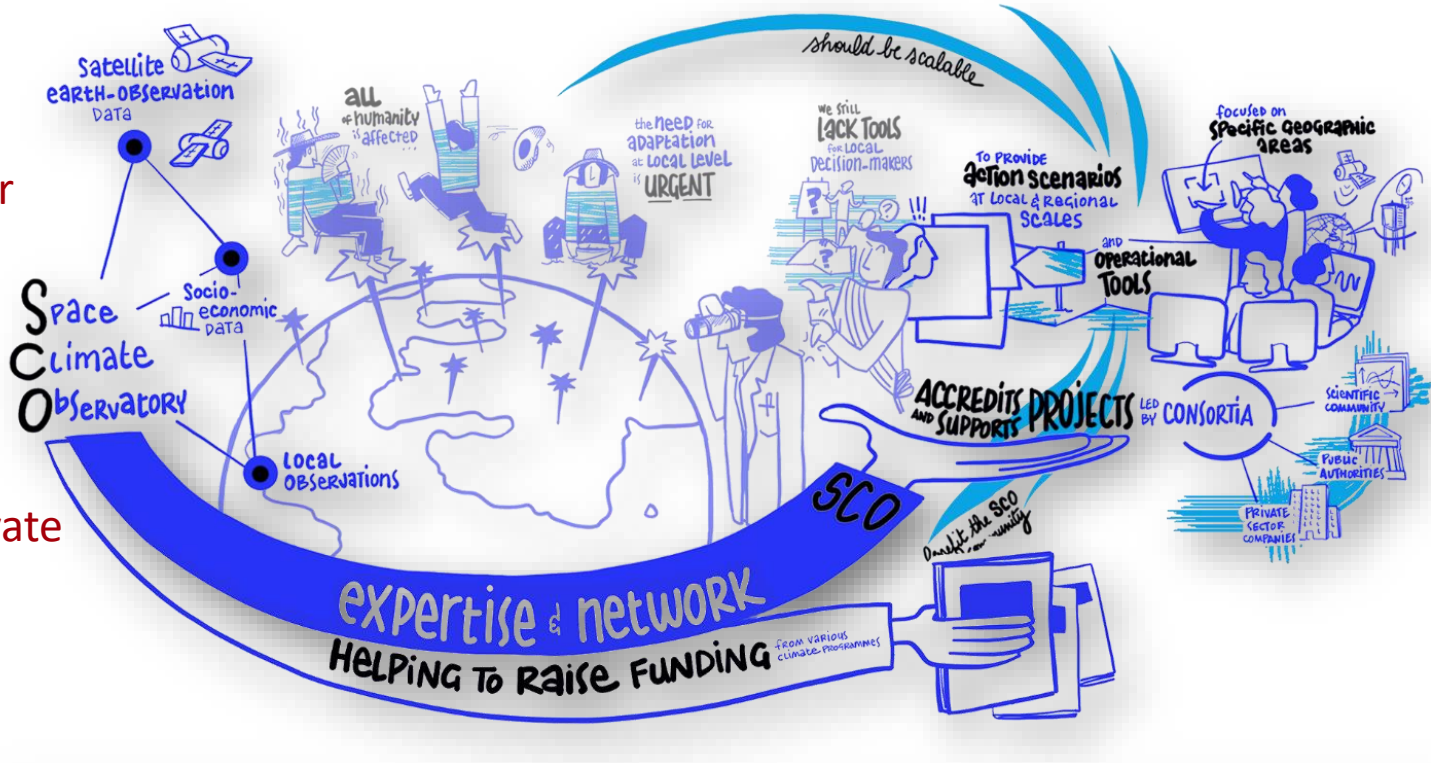
F. BRETAR

Provide **operational tools** for climate adaptation, mitigation and monitoring,

- at a **local scale**, using satellite-based observation tools together with in-situ data and models,
- designed to **answer specific needs** of the general public and decision-makers.

Foster cooperation around these applications to favour their reuse and communicate on them

Build a network for space agencies and public and private entities involved in the use of EO data for operational climate action



SCO: AN INTERNATIONAL ALLIANCE

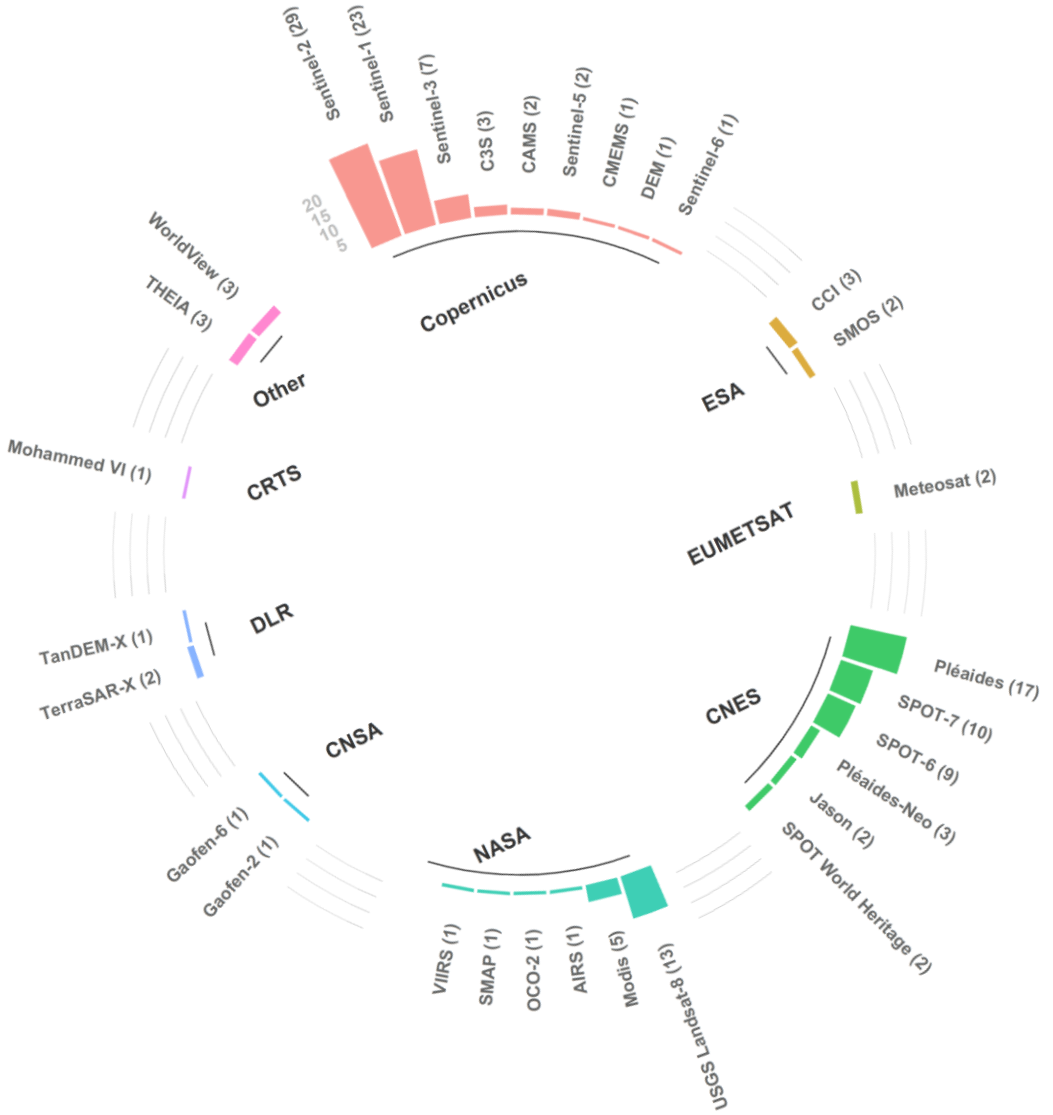
SCO

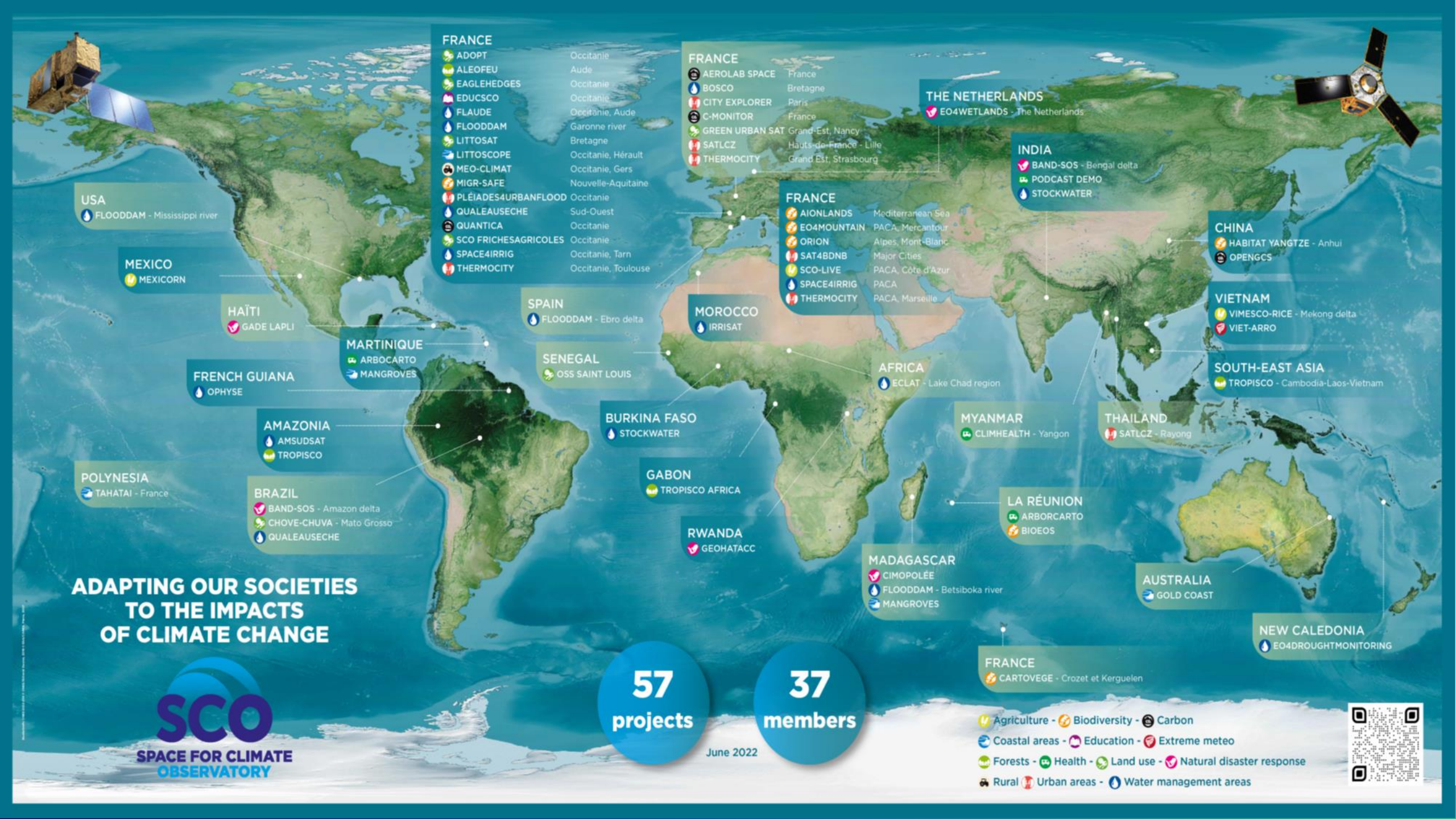
SPACE FOR CLIMATE OBSERVATORY

Charter on the establishment of the Space for Climate Observatory (SCO)

Today, the SCO is

1. A strong accreditation process
2. A portfolio of projects using a diversity of satellite data
3. A diversity of thematics
4. All around the world




FRANCE
ADOPT Occitanie
ALEOFEU Aude
EAGLEHEDGES Occitanie
EDUCSCO Occitanie
FLAUDE Occitanie, Aude
FLOODDAM Garonne river
LITTOSAT Bretagne
LITTOSCOPE Occitanie, Hérault
MEO-CLIMAT Occitanie, Gers
MIGR-SAFE Nouvelle-Aquitaine
PLÉIADES4URBANFLOOD Occitanie
QUALEAUSECHE Sud-Ouest
QUANTICA Occitanie
SCO FRICHESAGRICOLES Occitanie
SPACE4IRRIG Occitanie, Tarn
THERMOCITY Occitanie, Toulouse
FRANCE
AEROLAB SPACE France
BOSCO Bretagne
CITY EXPLORER Paris
C-MONITOR France
GREEN URBAN SAT Grand-Est, Nancy
SATLCZ Hauts-de-France - Lille
THERMOCITY Grand Est, Strasbourg
THE NETHERLANDS
EO4WETLANDS - The Netherlands
INDIA
BAND-SOS - Bengal delta
PODCAST DEMO
STOCKWATER
FRANCE
AIONLANDS Mediterranean Sea
EO4MOUNTAIN PACA, Mercantour
ORION Alpes, Mont-Blanc
SAT4BDNB Major Cities
SCO-LIVE PACA, Côte d'Azur
SPACE4IRRIG PACA
THERMOCITY PACA, Marseille
USA
FLOODDAM - Mississippi river
MEXICO
MEXICORN
HAÏTI
GADE LAPLI
MARTINIQUE
ARBOCARTO
MANGROVES
FRENCH GUIANA
OPHYSE
AMAZONIA
AMSUDSAT
TROPISCO
POLYNESIA
TAHATAI - France
BRAZIL
BAND-SOS - Amazon delta
CHOVE-CHUVA - Mato Grosso
QUALEAUSECHE
SPAIN
FLOODDAM - Ebro delta
SENEGAL
OSS SAINT LOUIS
MOROCCO
IRRISAT
BURKINA FASO
STOCKWATER
GABON
TROPISCO AFRICA
RWANDA
GEOHATACC
AFRICA
ECLAT - Lake Chad region
CHINA
HABITAT YANGTZE - Anhui
OPENGCS
VIETNAM
VIMESCO-RICE - Mekong delta
VIET-ARRO
SOUTH-EAST ASIA
TROPISCO - Cambodia-Laos-Vietnam
MYANMAR
CLIMHEALTH - Yangon
THAILAND
SATLCZ - Rayong
LA RÉUNION
ARBORCARTO
BIOEOS
MADAGASCAR
CIMOPOLÉE
FLOODDAM - Betsiboka river
MANGROVES
AUSTRALIA
GOLD COAST
NEW CALEDONIA
EO4DROUGHTMONITORING
FRANCE
CARTOVEGE - Crozet et Kerguelen
ADAPTING OUR SOCIETIES TO THE IMPACTS OF CLIMATE CHANGE
SCO
SPACE FOR CLIMATE OBSERVATORY
57 projects
37 members
June 2022
Agriculture - Biodiversity - Carbon
Coastal areas - Education - Extreme meteo
Forests - Health - Land use - Natural disaster response
Rural Urban areas - Water management areas

EXAMPLES: 12 SCO PROJECTS IN THE WATER AND VULNERABILITY SECTOR

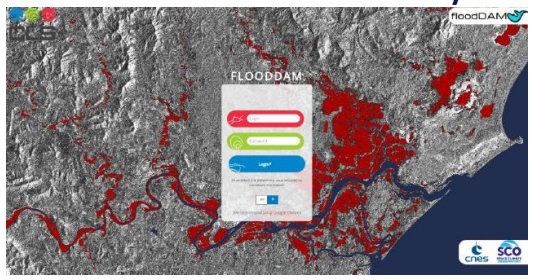
Type of tool

Adaptation / planning tools

Real-time alert systems

Forecast / reanalysis tools

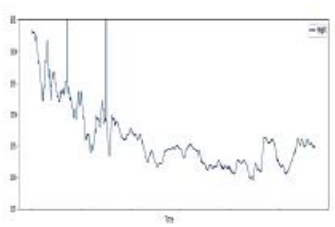
- **FLAude** — Hydrometeorological events, France
- **BOSCO** — Soil water content, France
- **EO4DroughtMonitoring** — Droughts, New Caledonia
- **Space4Irrig** — Crop irrigation, France
- **Gade Lapli** — Rainfall, Haiti
- **OpHySE** — River navigation, French Guiana
- **Stock Water** — Dams, India
- **LITTOSAT** — Shallow water, France
- **Band-SOS** — Cyclonic flooding, Bengal Delta
- **Littoscope** — Flooding risks, France
- **FloodDAM** — Floodwaters, France
- **OSS Saint-Louis** — Flooding, Senegal

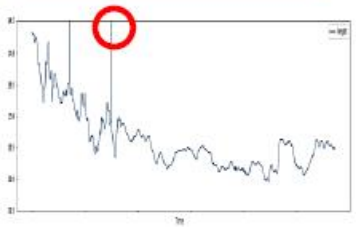


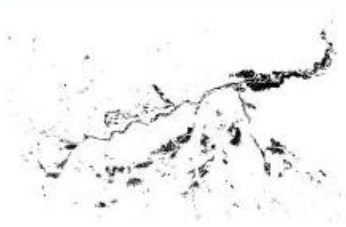
Inland areas — **Site location** — Coastal areas

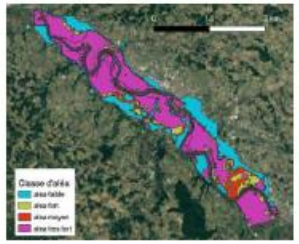
Interface DT

1- Water level measurement → Interface DT → 2- Water height anomaly detection → 3- Flood rapid mapping from EO imagery → Interface DT → 4- Risk map and modelling → 5- Result visualization → 6- Use Cases









- Financial institution
- Insurers
- Real estate funds
- Etc...

- **OUT**: water height of in-situ measures

- **IN**: water height of in-situ measures
- **OUT**: date & location of in-situ measures

- **IN**: date & location of in-situ measures
- **OUT**: map of flooded areas (GeoTIFF) & poster (PDF)

- **IN**: map of flooded areas (GeoTIFF)
- **OUT**: risk maps

- **IN**: location of in-situ measures, map of flooded areas, risk maps

Need for data harvesting for other platform

- **IN**: risk maps
- **OUT**: indicators

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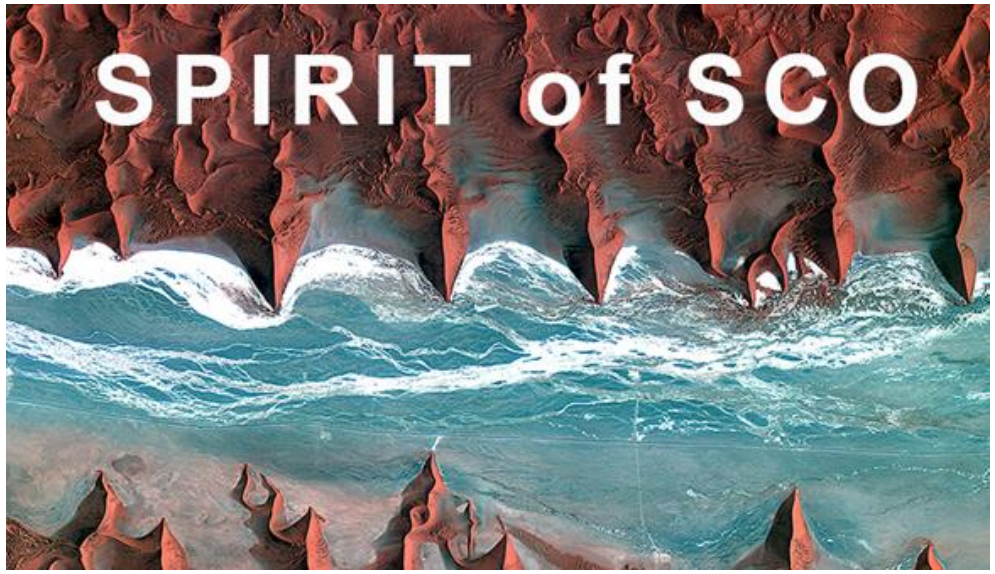

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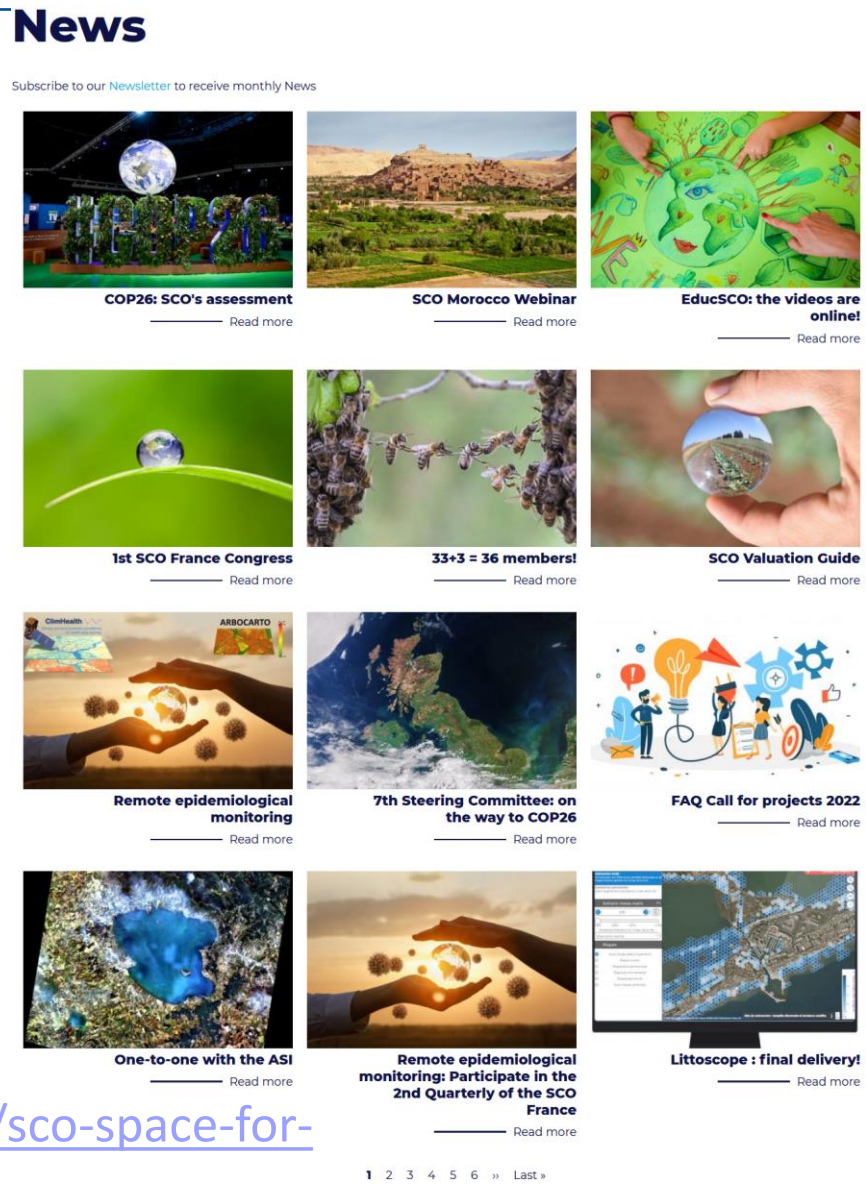

https://www.linkedin.com/company/sco-space-for-climate-observatory/