Space Climate Observatory

High Level Forum 2018: The way forward after UNISPACE+50 and on Space2030

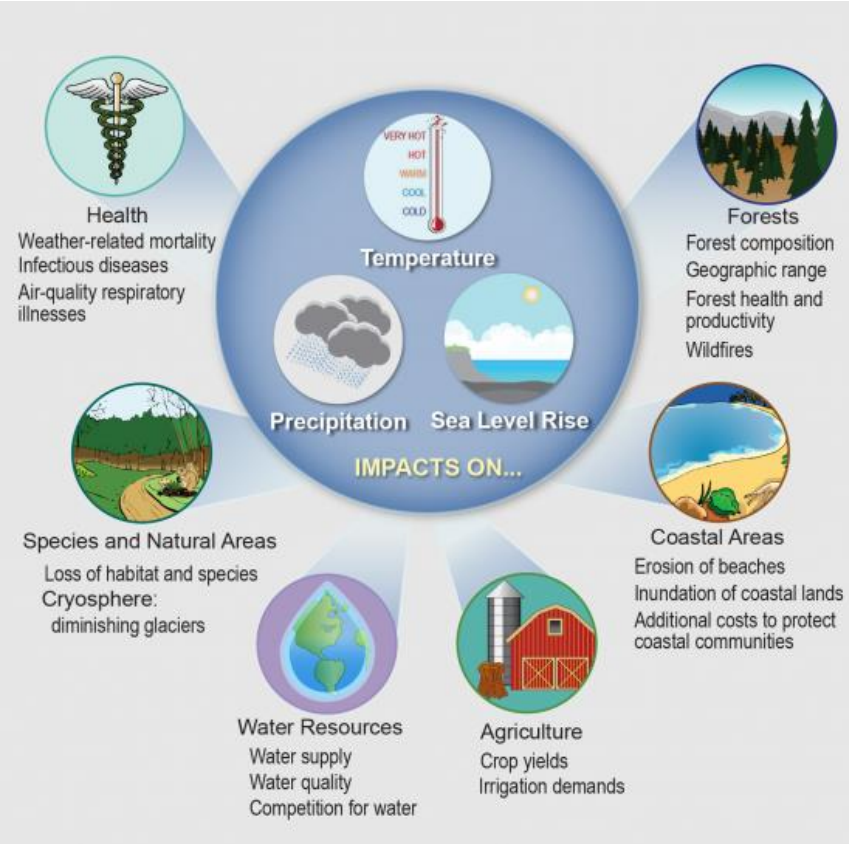
13 – 16 November 2018 in Bonn, Germany

Dr. Selma Cherchali

SCO Program Director

The climate change…

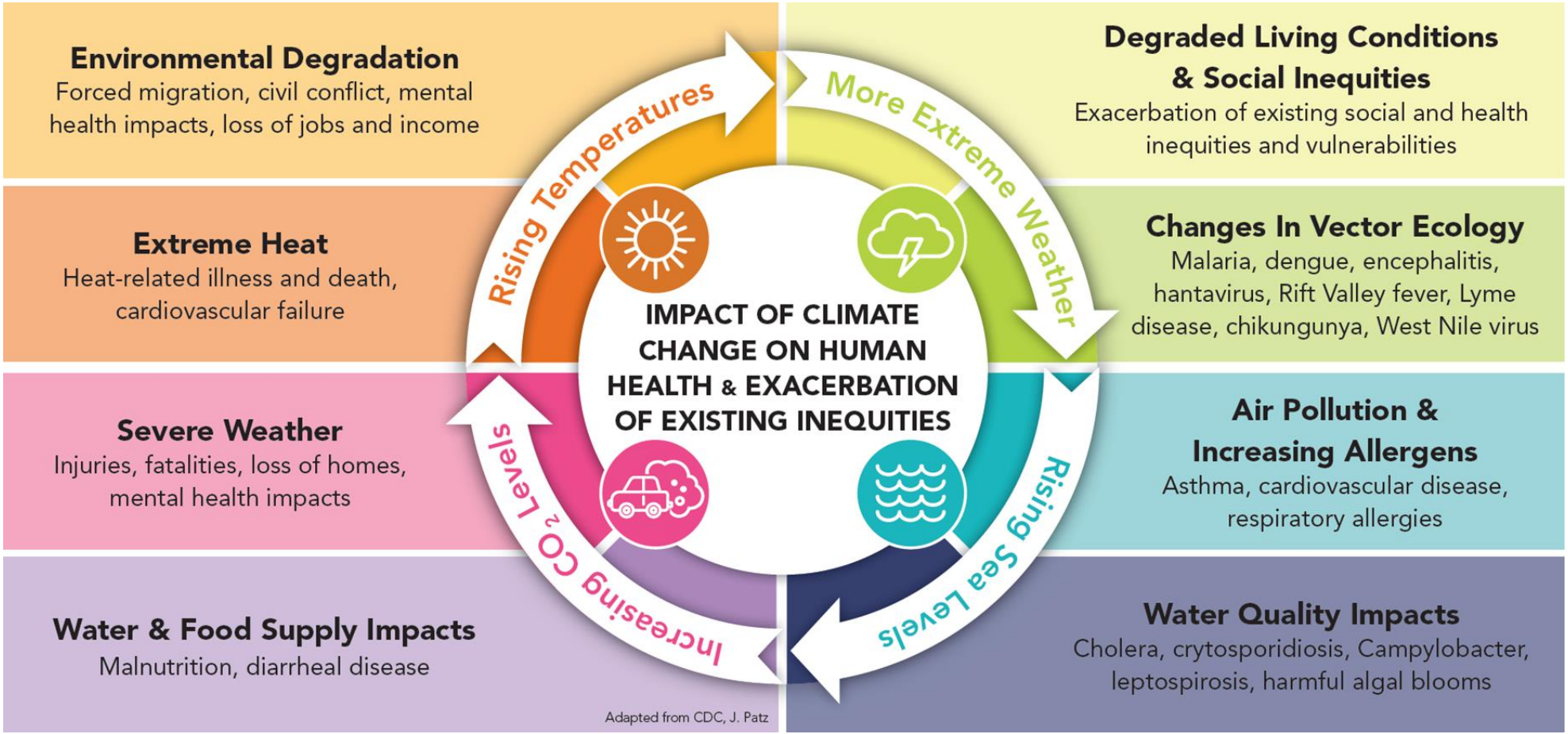
Potential effects of climate change



Source. Climate Change Impacts in the United States: The Third National Climate Assessment

The climate change…

… and Human Impacts



The climate change…

International framework

Illustration by David Parkins
Nature 514, 30–31, Oct. 2014

…

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

MARRAKECH
COP22|2016|CMP12

COP23 FIJI
UN CLIMATE CHANGE CONFERENCE
BONN 2017

One Planet Summit – Paris, December 11th, 2017

The climate change…

French Government Identifies 12 key One Planet Commitments

COMMITMENT N°1 RESPONDING TO EXTREME EVENTS IN ISLAND STATES	COMMITMENT N°2 PROTECTING LAND AND WATER AGAINST CLIMATE CHANGE	COMMITMENT N°3 MOBILIZING RESEARCHERS AND YOUNG PEOPLE TO WORK FOR THE CLIMATE	COMMITMENT N°4 PUBLIC PROCUREMENT AND ACCESS FOR LOCAL GOVERNMENTS TO GREEN FINANCING	
COMMITMENT N°5 ZERO EMISSIONS TARGET	COMMITMENT N°6 SECTORAL SHIFTS TOWARDS A DECARBONIZED ECONOMY	COMMITMENT N°7 ZERO-POLLUTION TRANSPORT	ENGAGEMENT N°8 VERS UN PRIX DU CARBONE COMPATIBLE AVEC L'ACCORD DE PARIS	
COMMITMENT N°9 ACTIONS OF CENTRAL BANKS AND BUSINESSES	COMMITMENT N°10 INTERNATIONAL MOBILIZATION OF DEVELOPMENT BANKS	COMMITMENT N°11 COMMITMENT BY SOVEREIGN FUNDS	COMMITMENT N°12 MOBILIZING INSTITUTIONAL INVESTORS	

Creation of a Space Climate Observatory

Instigated by the French Space Agency, a Space Climate Observatory has been created in order to provide States and the scientific community with all the space data necessary for monitoring the health of our planet. This initiative is supported by all European space agencies, as well as other States including China, India, Russia, Mexico, Morocco and the United Arab Emirates. Access to interoperable space-based earth observation data will be a significant step forward in the earth monitoring system.

Scope

“Space Climate Observatory”

A world observatory of
the climate change and its impacts
from Earth Observation data

- **Satellite data**
  - » Earth observations at global, national and territories level
- **Climate change and its impacts**
  - » Humankind, both as anthropogenic causes and as the victims of the impacts (temperature increase, sea level rise and hazards…)
- **a joint Observatory**
  - » A World Heritage system

→ **http://spaceclimateobservatory.org**

Scope

Monitoring climate change

- Atmospheric CO_2 concentration,
- Global temperature, Clouds and Precipitation change,
- Sea level rise, Droughts and floods…

Tracking the impacts of climate change

- Environmental impacts
- Social and human impacts
- Biodiversity reduction
- Economical costs

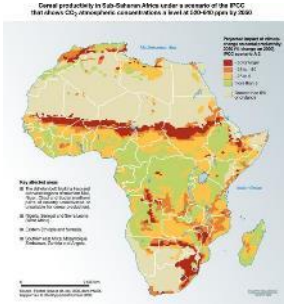
Mitigating and Adapting to climate change

- Resources: land use, agricultural practices, relocation, water use…
- Population: Migration of people, food security…
- Socio-economic development paths

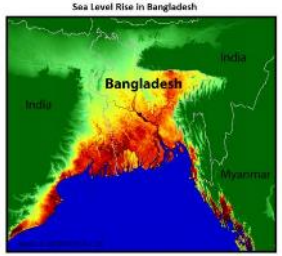
Country, sub-national / Territorial Stakes

Climate Change Impacts

Continental scale



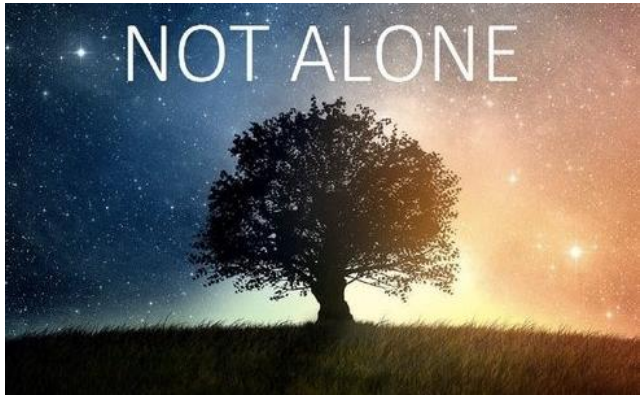
Country scale



Territorial scale

- Climate change impacts are worldwide but there are also specific impacts at **national, sub-national and territory levels**
- Public access to data, tools and knowledge products
  - Countries and territories level involvement
  - A need for indicators to monitor the impacts at the right scale : specific needs (Paris Agreement, article 7) and elaborate scenarios of projections
- Need to implement attenuation and adaptation policies
  - Decision Making
  - Meaningful stakeholder involvement
- Need to marshal our forces through collaboration, partnerships, knowledge networks
  - Co-construction (bilateral and / or multilateral cooperation)

Principles



Not alone !

- A country, an agency, an institution…
  could not make it for all the World/Planet

Involvement and cooperation of wide range of bodies

- GEO, CEOS, CGMS and UN Agencies
- National organizations, Ministries, local entities…
- Political commitment requires from those partners

Co-construction

CO DESIGN

- At level of populations
  - Metrics and social indicators to measure the appropriation and acceptance by stakeholders
- Communities of development
- Make available to others, freely
- Exchange of use, best practice

Science : an essential pilar

- The best state of the art of Science at international level
- Through cooperation and sharing expertise
- Each scenario : how research scientists are using satellite and field data to develop reliable and transposable models.
- Such models deliver indicators and alerting or decision-support tools to mitigate and adapt to the effects of climate change ahead of us.

Pooling international resources and expertise is clearly the way to go, and the SCO is a stepping stone towards this goal.

Space Climate Observatory

Three Objectives

1

Information, Outreach
Communication, Learn

Quality Control and Validation

Research & Education

Government & Society

Traditional & New Medias

2

Improve data access
(access – Interoperability – Free)

From Earth observations

Satellite data

ECV

In-situ data

Socio-economic data

3

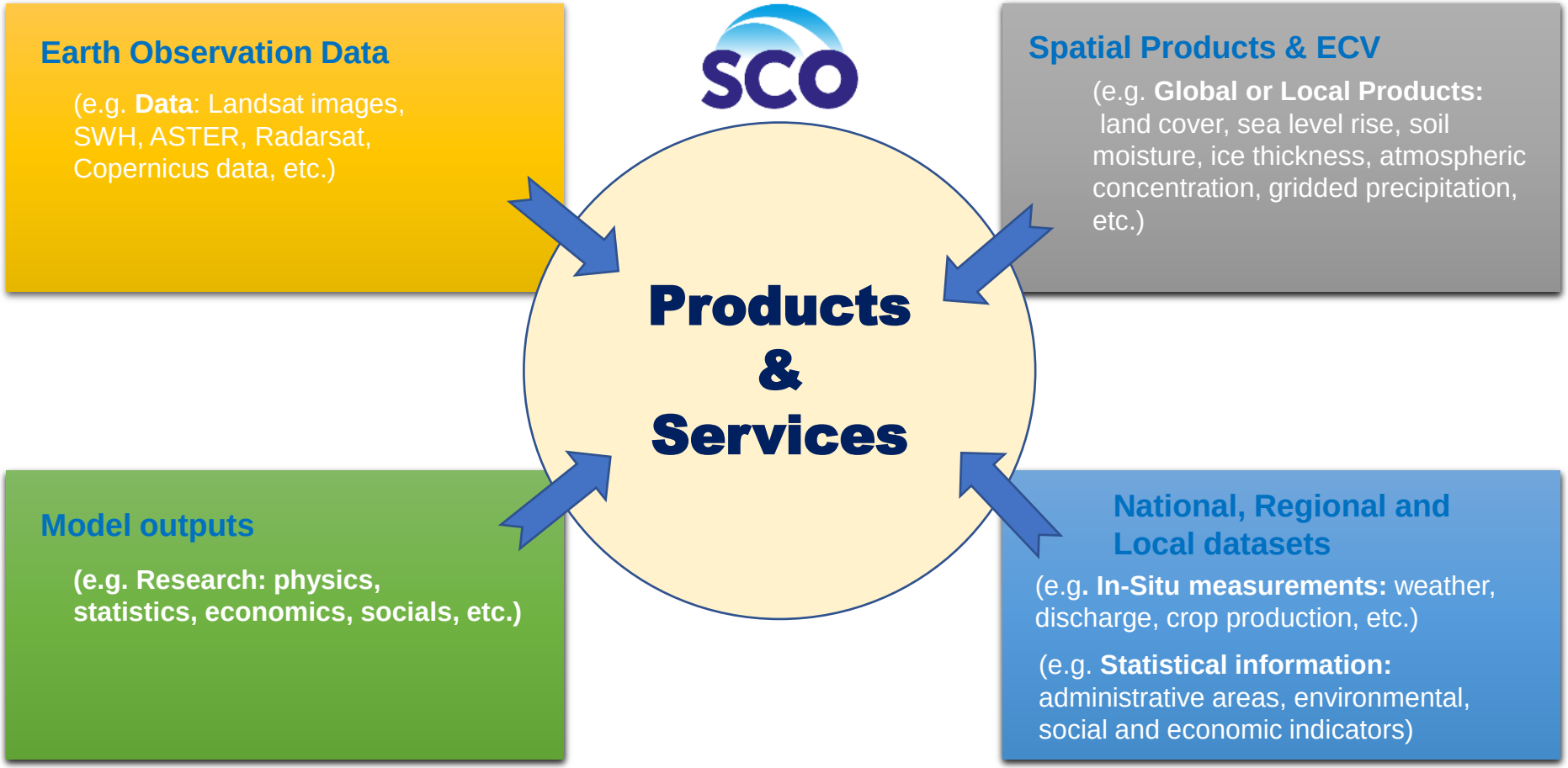
Products & Services

Toolkits and computing capacities

Maps & Indicators

Scenarios
(past, present & future)

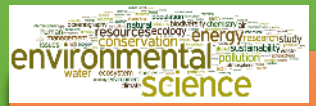
Objective 3 – Products & Services



Space Climate Observatory

Access

National SCO Data Center



National SCO Products & Services

Space Agencies

Committee on Earth Observation Satellites

CGMS

China Space Agency

UAE SPACE AGENCY

...

International Organization

GROUP ON EARTH OBSERVATIONS

opernicus Europe's eyes on Earth

Climate Change Service

WCRP World Climate Research Programme

GCOS GLOBAL CLIMATE OBSERVING SYSTEM

...

but always

SCO – HUB

Data access, Information, Products & associated Services

but always

End Users

Space Climate Observatory

National contribution

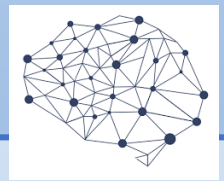
International

Climate Change & Impacts

National

France

Cognitive Science AI



Big data

Human, Social and Economic Sciences

Socio-Economic Data

« IR Système Terre »

DINAMIS, PEPS

Space Climate Observatory

In summary -> An international and ambitious Program

- At level of populations
  - Metrics and social indicators to measure the appropriation and acceptance by stakeholders

- Co-construction
  - Communities of practice, enhance contribution and cooperation, sharing expertise
  - Adapt the methodology/models/chains to country level needs – capacity building

- Open to all
  - Inclusive international dimension
  - A country, an agency, an institution… could not make it for all the world/Planet
  - Transverse to Climate, Land, Ocean, Coastal… communities but also to social and economic science and communities

Schedule

Short term

Definition of international dimension of SCO

Dec. 11, 2018	Paris Declaration “Towards a space Climate Observatory”, Space Agencies
Dec. 12, 2018	One Planet Summit “Creation of a Space Climate Observatory”, French Government – Commitments N°5
Feb. 2018	Nomination of a Head of SCO Program and Project Manager, CNES
	Toulouse Space Show (TSS) - Public demonstration, use cases
June 2018	[CNES-CNRS-IRD-Météo France], CNSA, CRTS
Sep. 26, 2018	2nd meeting of One Planet Summit, New York
Oct. 11, 12, 2018	Workshop Australia, Brisbane
Oct. 18, 19, 2018	**Workshop UNEP**
Planned	
Jan. 2019	*First International meeting – Documentation - partnership*
Mar. 2019	***Signature of an international charter/agreement, Nairobi***
Nov. 2019	GEO Ministerial in Canberra, Australia

Planned

Two Years *2019-2020* Use cases to validate the approach and the added value for the populations (internationally)

Five years *2021-2023* Sustainability of activities to respond to the 2030 agenda (SDGs)

Conclusion

We have the knowledge and the technology to reduce our impacts on the climate and ease the pressures on the world's most vulnerable places, people and wildlife.

SCO commitment is a fantastic stepping stone

- **Individual countries creating ambitions plan in order to achieve this target!**

We just need to make it happen!