

# **Sustaining Systematic Observations of Climate from Space**

**Mark Doherty  
European Space Agency**

**their challenge...**



- mitigation
- adaptation

our challenge...



- long term global observations



**Earth-observation satellites**

# Something to watch over us

**The Earth should be monitored more carefully**

May 12th 2012 | from the print edition

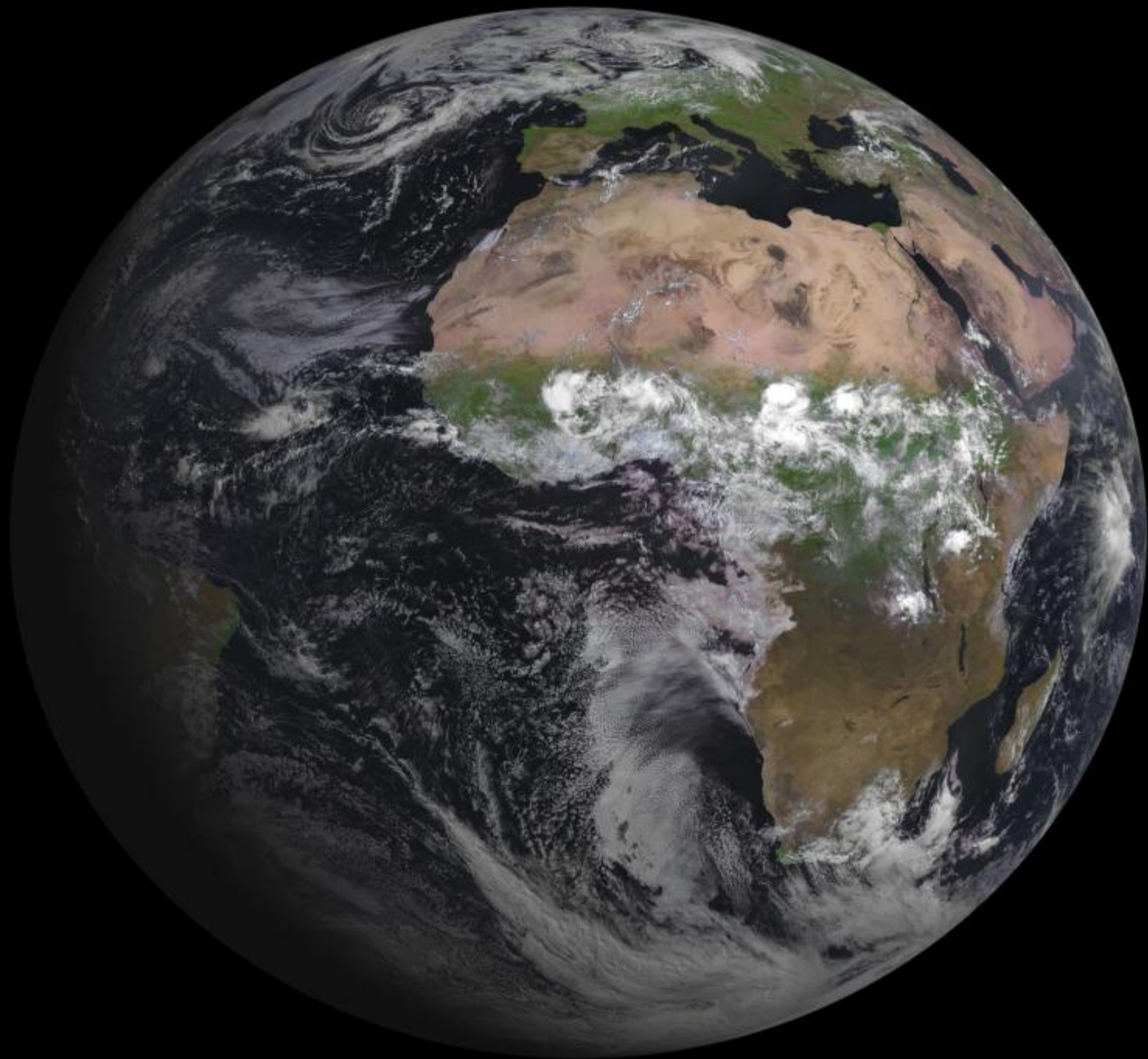
ON  
APRIL  
8th  
Envisat,  
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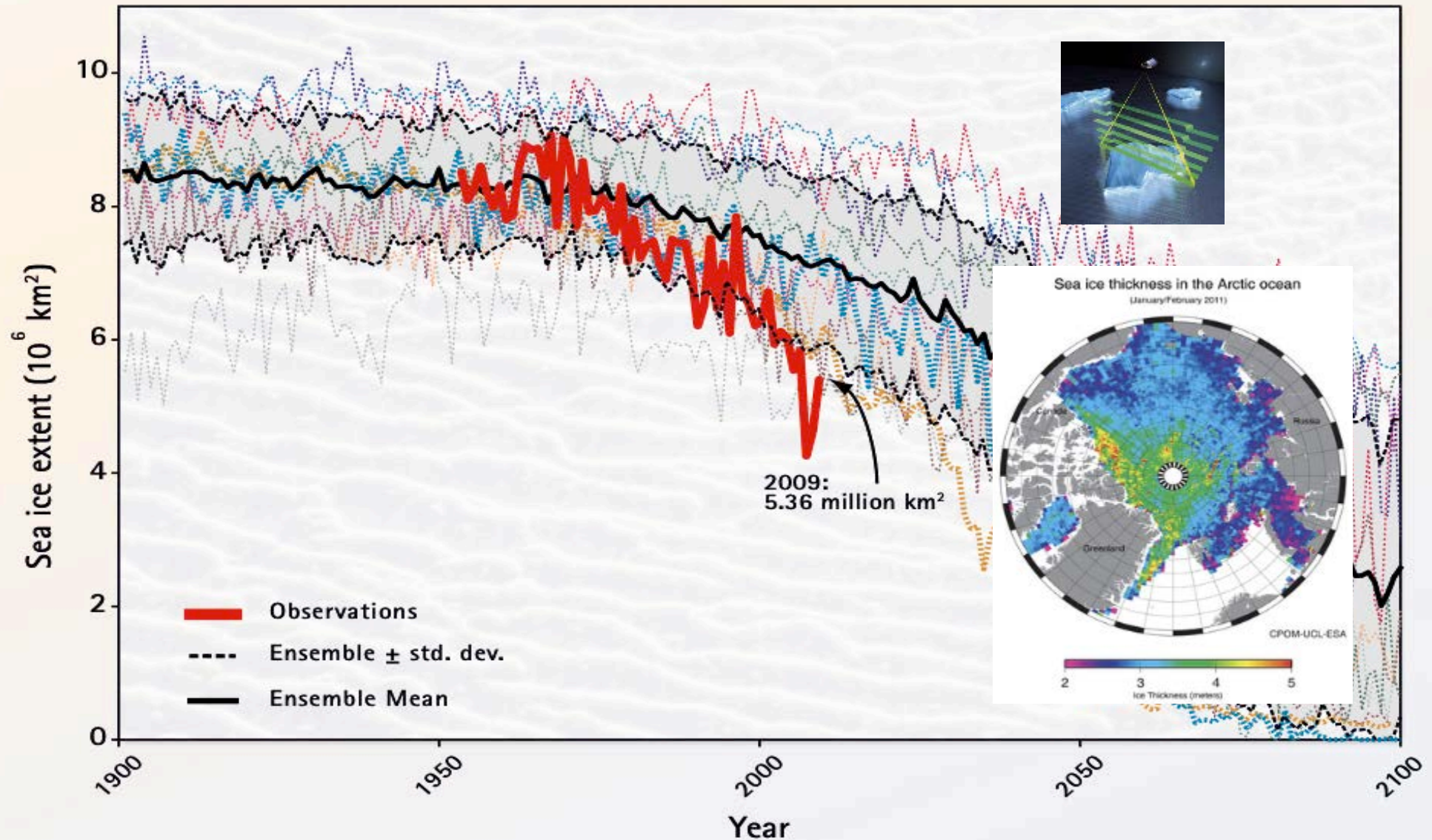
# Europe's Earth Observation "fleet"







# new satellite observations



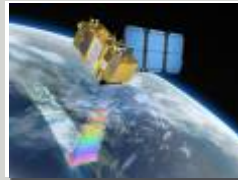
# GMES Sentinels



## **Sentinel 1 – SAR imaging**

All weather, day/night applications, interferometry

2013 / 2015



## **Sentinel 2 – Multi-spectral imaging**

Land applications: urban, forest, agriculture,..  
Continuity of Landsat, SPOT

2014 / 2016



## **Sentinel 3 – Ocean and global land monitoring**

Wide-swath ocean color, vegetation, sea/land  
surface temperature, altimetry

2014 / 2017



## **Sentinel 4 – Geostationary atmospheric**

Atmospheric composition monitoring, trans-  
boundary pollution

2019



## **Sentinel 5 / 5P – Low-orbit atmospheric**

Atmospheric composition monitoring  
(S5 Precursor launch in 2015)

2015, 2020





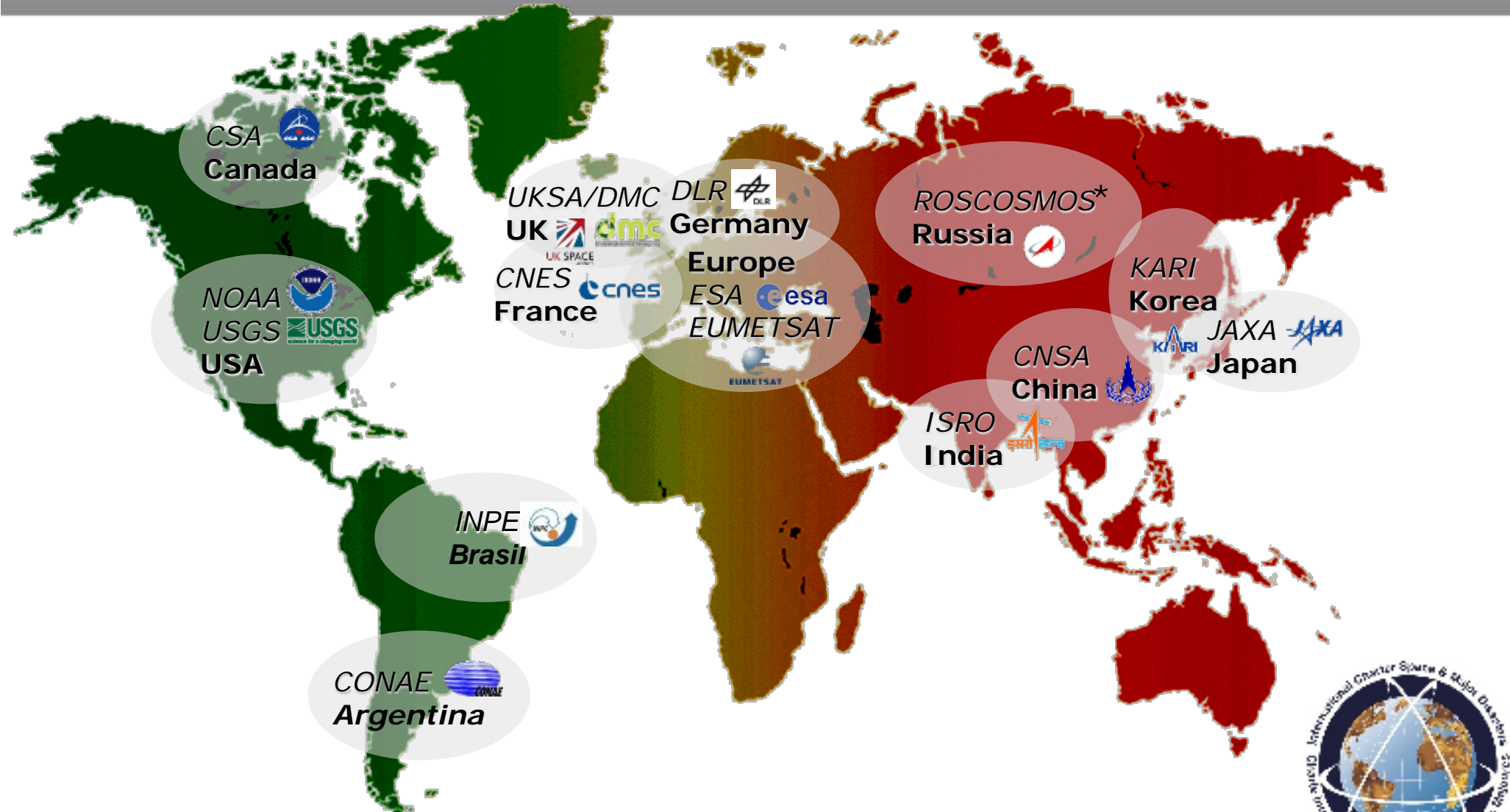
# free and open data access



# public infrastructure

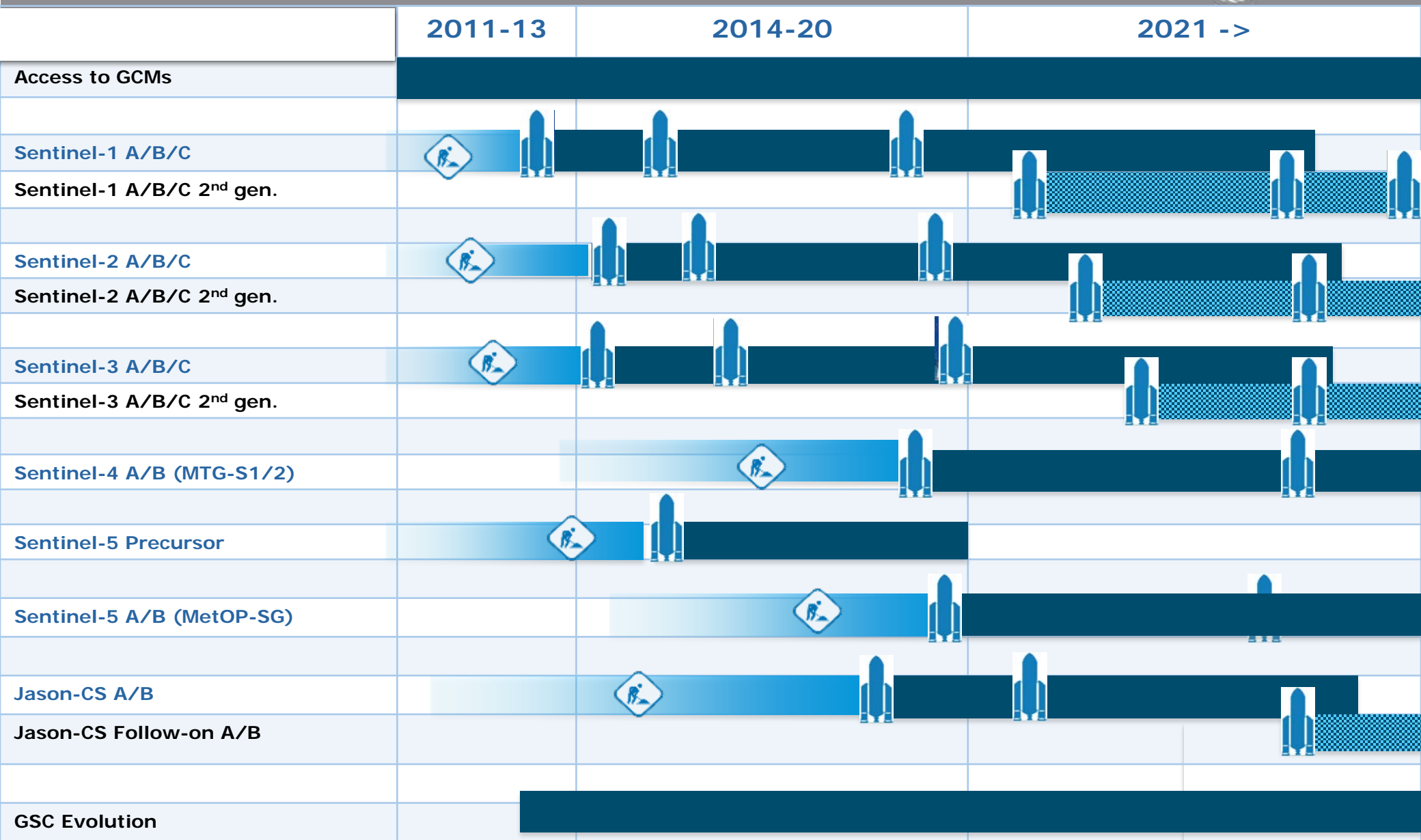


# Charter for Space and Major Disasters





# Building the observing infrastructure



socio-economic benefits



**growth**







*Encourages the **Committee on Earth Observation Satellites** to continue coordinating and supporting the implementation of the **satellite component of the Global Climate Observing System***

*Urges Parties that support **space agencies** involved in global observations to enable these agencies to continue to implement, in a **coordinated manner through the Committee on Earth Observation Satellites**, the actions identified in the updated report of the Committee on Earth Observation Satellites, in order to meet the relevant needs of the Convention, in particular by ensuring long-term continuity of observations and data availability.*

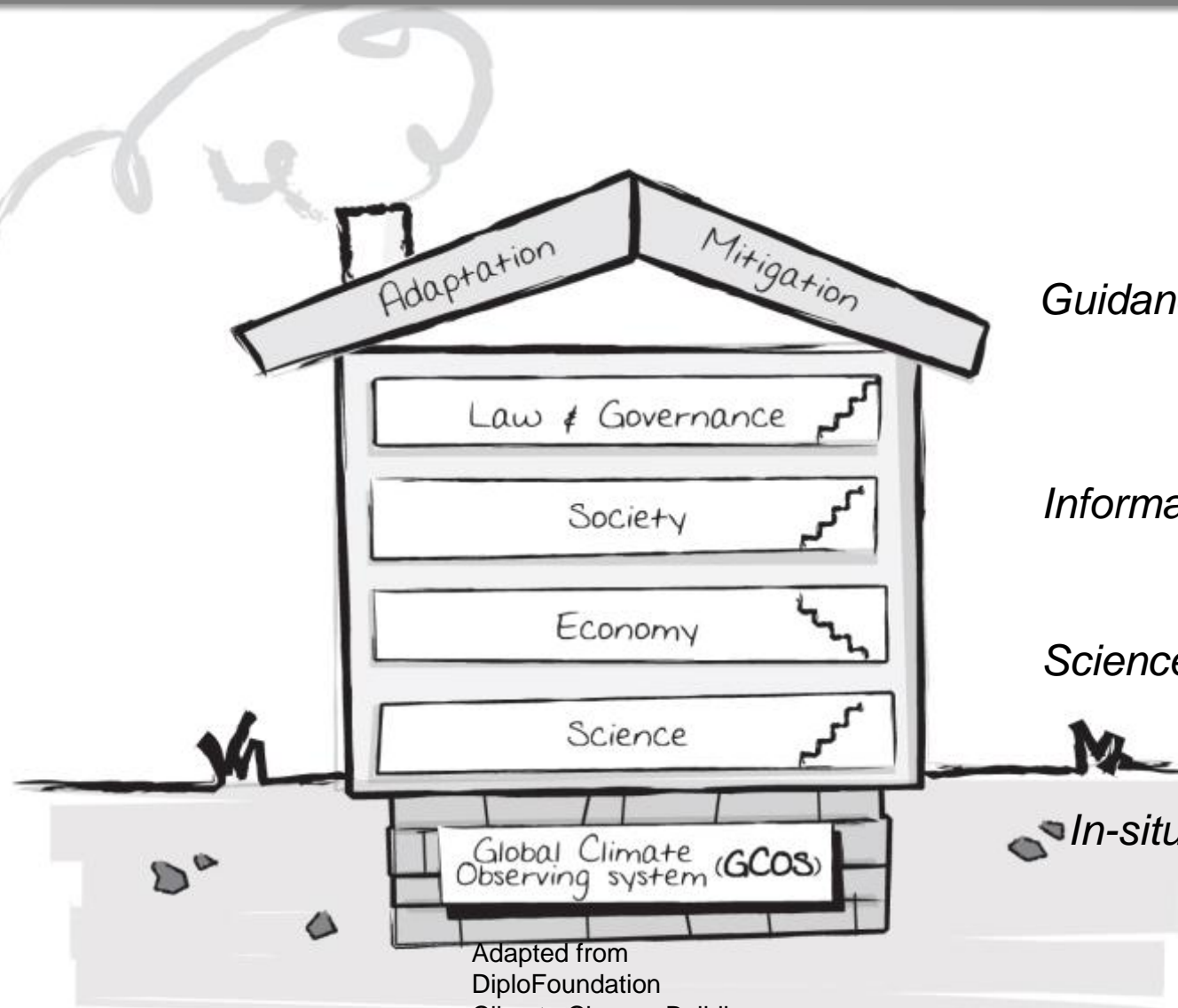
**SBSTA** noted the importance of **continuing and sustaining satellite observations** on a **long-term** basis and the role of **CEOS** in promoting **full and open data sharing**, in order to **support the work under the Convention**.

It invited the **CEOS** to provide, by **SBSTA** 41, an updated **report** on progress made by **space agencies** involved in **global observations** in their **coordinated response** to relevant **needs of the Convention**

# Observations foundation of science and services



Climate House  
**WITH**  
Observations



*Guidance / Knowledge*

*Information services*

*Science Assessment*

*In-situ & Space data*

Adapted from  
DiploFoundation  
Climate Change Building



# Observations

## foundation of science and services



Climate House  
**WITHOUT**  
Observations



Courtesy Marco, ESA

thank you



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