

# **Polish contribution to «Copernicus» *European Earth Observation Programme***

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*Vienna, 18 February 2013*

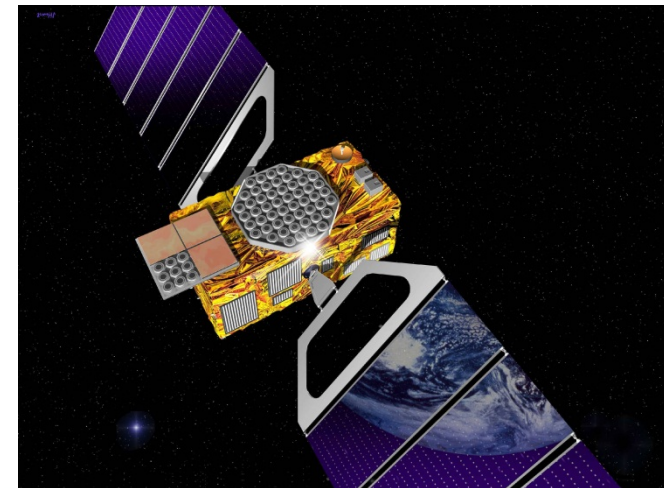
- 1998** Birth of GMES - Baveno Manifesto
- 2006** European Commission creates GMES Bureau
- 2007** Announcement of European Space Policy with GMES as a flag program
- 2008** First pre-operational services
- 2012** European Commission renames GMES to COPERNICUS
- 2014** First operational services



**Nicolaus Copernicus 1473-1523**



**Galileo Galilei 1564 – 1642**



# Services

*existing (\*) being defined (\*\*)*

**GIO**



**FP7**



**FP7**



# *Geneses*

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**Now there are similar services but :**

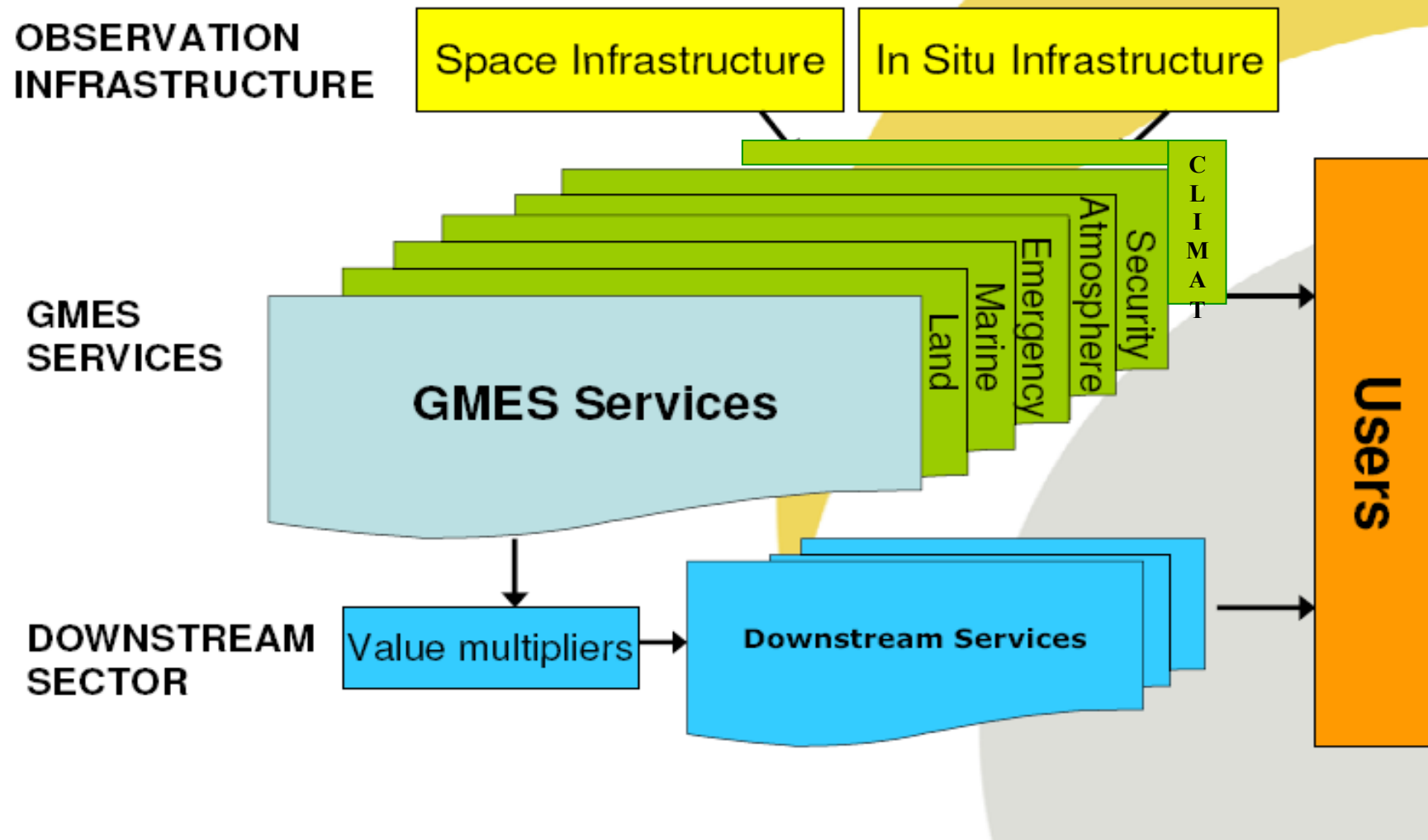
- **there is not continuity**
- **For example satellites are not renovated**

**Copernicus will change it, ensuring:**

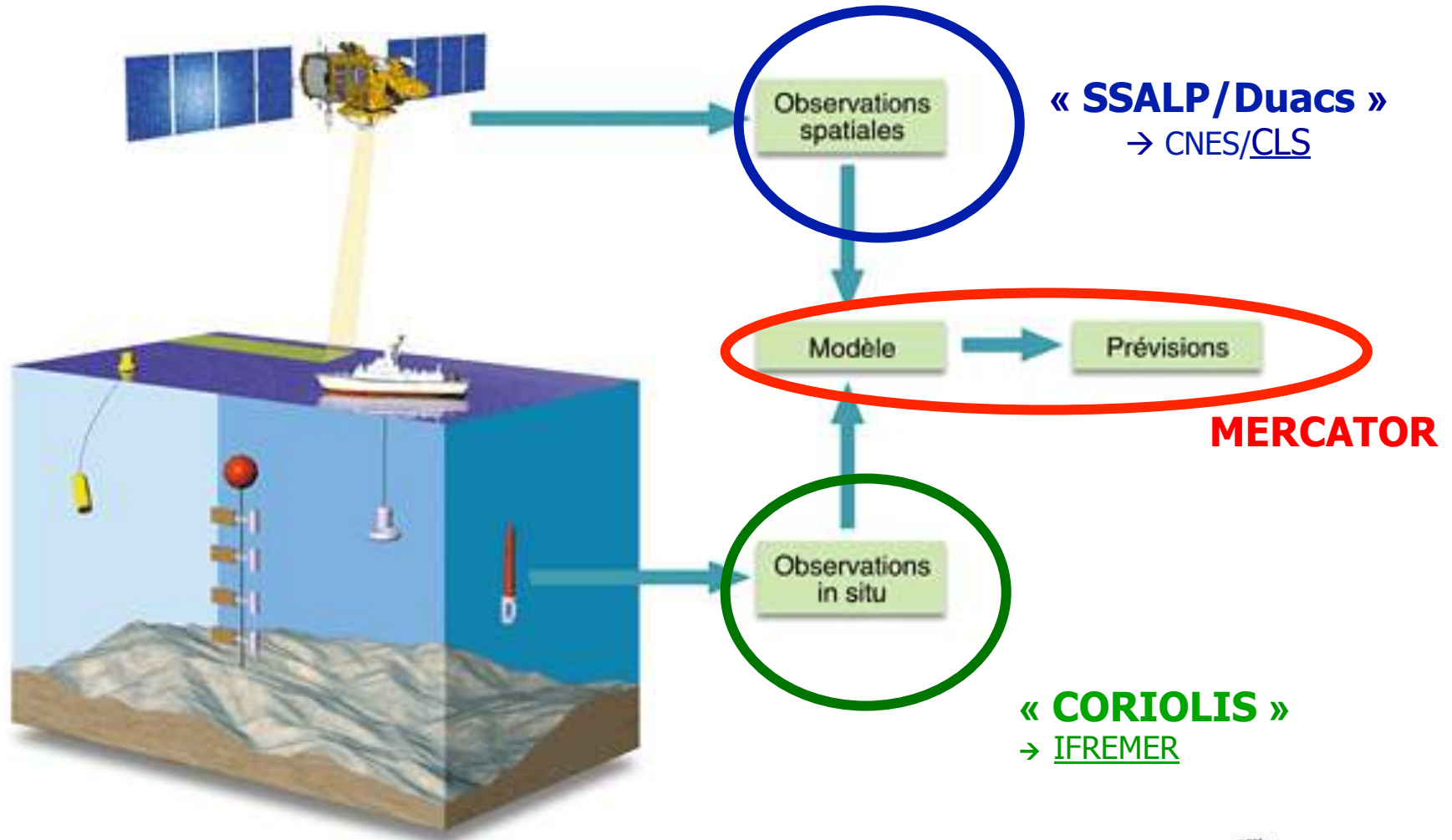
- **continuity of services**
- **renewing satellites (Sentineles)**

**It will be first such program in the world.**

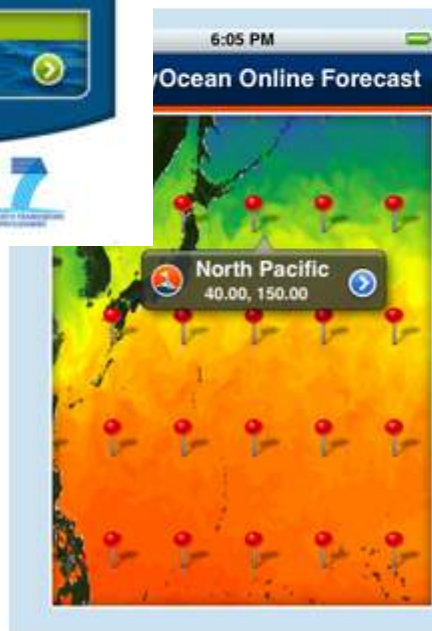
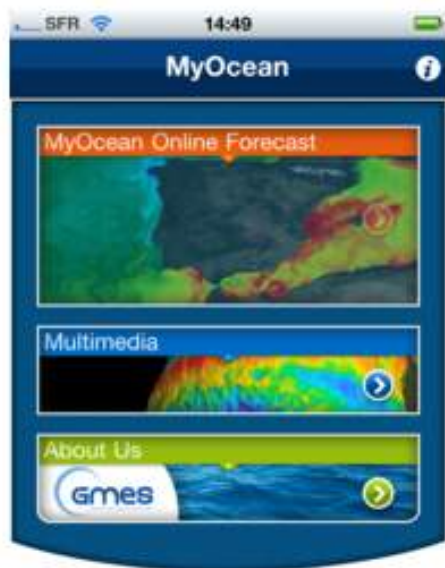
# GMES Architecture



# Sea



## MyOcean iPhone Application







## **Polish contribution to COPERNICUS *(some examples)***

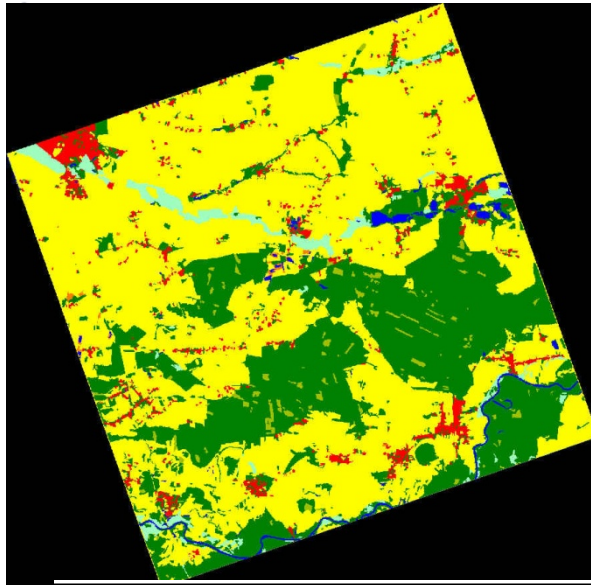
- **Support to Climate Change Initiative**
- **Support to Soil Moisture Essential Climate Variable (ECV)**
- **Support to Natural Emergency Services**
- **Support to Drought Detection and Monitoring activities**
- **Support to efficient use of Sentinel 1 and 2 satellites data**



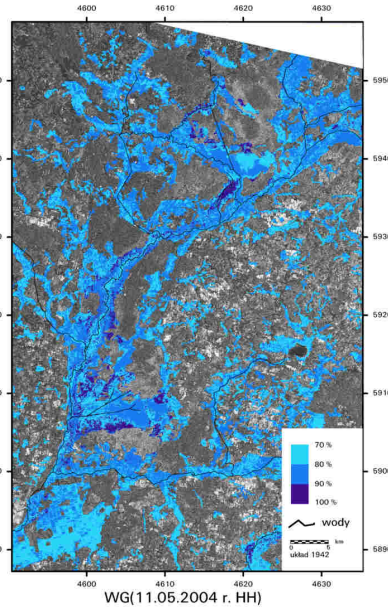
## **Usefulness of EO Based Methods and Products for Polish Science and Economy**

- 1. Effective use of land cover maps in physical planning at regional scale**
- 2. Effective use of information for proper agricultural management:**
- 3. Effective use of EO-based information for water management:**
- 4. Monitoring of Protected Areas:**
  - NATURA 2000**
  - national and landscape parks**
  - High Nature Value Areas including the phenology trends**
- 5. Renewable Energy :**
  - monitoring of energy crops – biomass assessment**

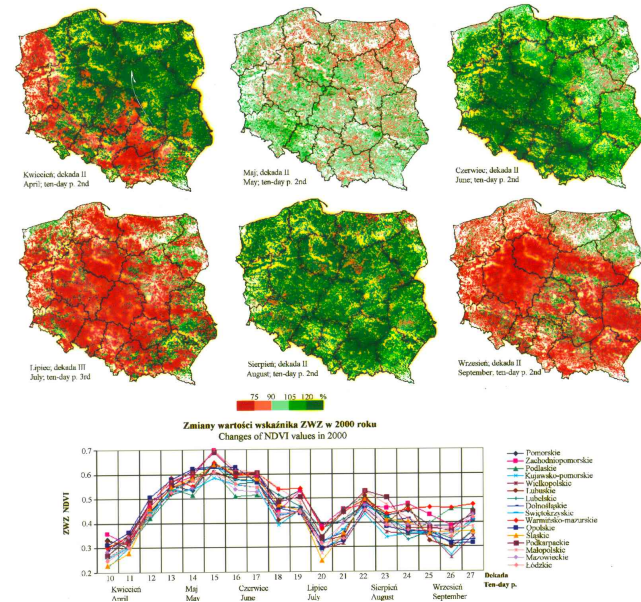
Land cover map



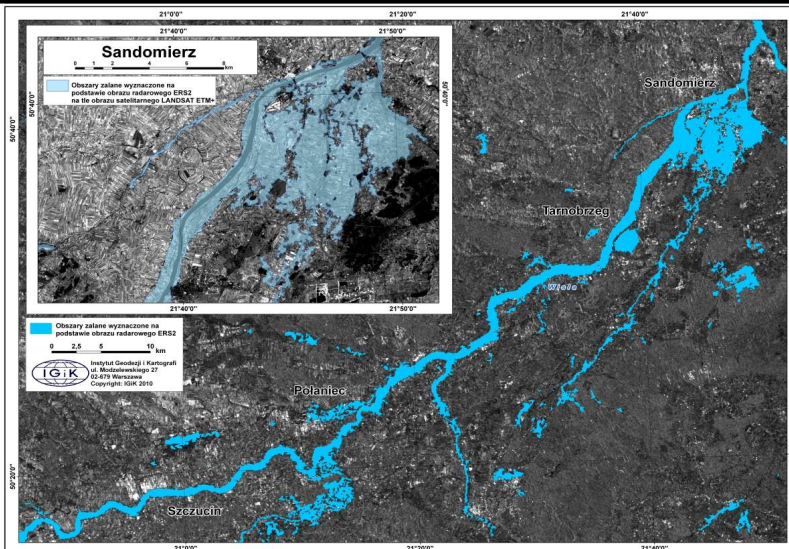
Soil moisture map



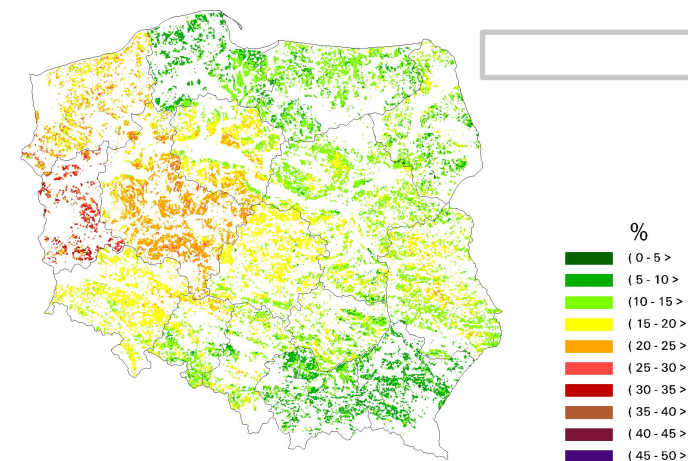
Crop condition assessment



Estimation of flood extent in 2010



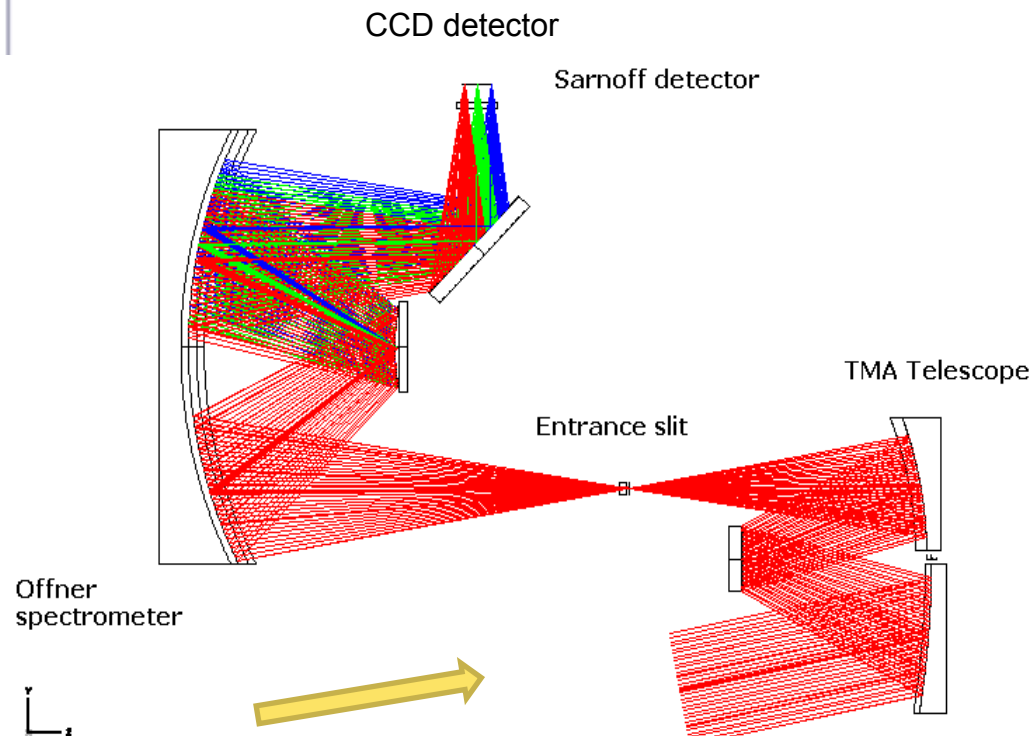
Prognosis of yield reduction – April 21, 2012



# Polish tentative contribution to COPERNICUS

## Compact imaging spectrometers for small satellite missions

### Imaging hyperspectral spectrometers (IHS)



### Heritage

#### 1. IHS for UAV

spectral range	0,4 – 1,1 $\mu\text{m}$
spectral resolution	$\Delta\lambda = 2\text{-}3 \text{ nm}$
mass	8 kg

#### 2. IHS for BEPI Colombo mission experiment MERTIS

(cooperation with DLR Berlin)

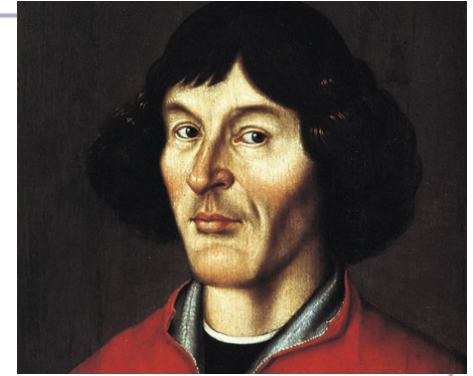
spectral range	7 – 14 $\mu\text{m}$
spectral resolution	< 200 nm
mass	3 kg

#### 3. Multispectral spectrometers for ground measurements

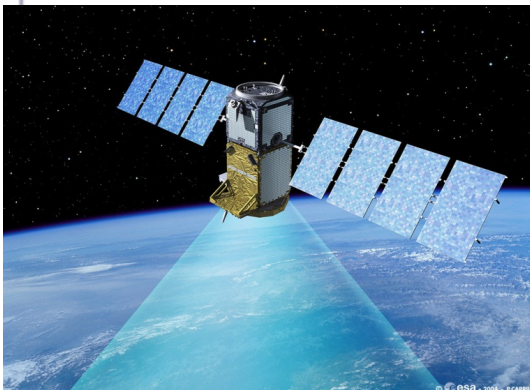
#### 4. Thermal cameras

**Vistula Lagune on Baltic shore**  
*View from space*





*Thank you !*



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