The Three Satellites are in Operational Phase

- **1ST SATELLITE LAUNCH**: 08 June 2007
- **2ND SATELLITE LAUNCH**: 09 Dec. 2007

**4TH SATELLITE LAUNCH PLANNING:** WITHIN 2010

- **COSMO-1**
- **COSMO-2** at 67.5°
- **COSMO-3** in Tandem-like Operational Configuration

**OPERATIONAL SATELLITES:**

- **2007**: COSMO
- **2010**: 4 OPERATIONAL SATELLITES
- **2012**: COSMO-SkyMed 1st Generation
- **2014**: 2nd GENERATION
**MISSION CHARACTERISTICS**

**REVISIT TIME**

3 Satellites
MAX < 35.5h (worst case)
REVISIT TIME AT EUROPEAN LAT. ~ 4 - 5 h

4 Satellites
MAX < 12h (worst case)
REVISIT TIME AT EUROPEAN LAT. ~ 3,5 - 4,5 h

**RESPONSE TIME**

3 SATELLITES (worst case)

- VERY URGENT: 46h
- CRISIS: 62h
- ROUTINE: 85h

4 SATELLITES (worst case)

- VERY URGENT: 18h
- CRISIS: 36h
- ROUTINE: 72h
ASI supports the INSTITUTIONAL (incl. SCIENTIFIC) data exploitation

www.cosmo-skymed.it

e-GEOS supports the COMMERCIAL data exploitation

www.e-geos.it
Currently CSK Data Expl. is mainly based on the following projects:

**International Partners**
- CNES – ORFEO Program
- CONAE – SIASGE Program

**National and International Institutional Users**
- COSMO-SkyMed Announcement of Opportunity
- ASI EO Pilot Projects

**System Owners**
- ASI – Background Mission
DATA EXPLOITATION

National and International Institutional Users:

COSMO-SkyMed Announcement of Opportunity

The approved projects have been published on the ASI website http://www.asi.it and on the http://eopi.asi.it)

27 Italian projects will be funded by ASI

167 projects to be activated
Each project will last 2 years

ASI assigned more than 16000 CSK products to be exploited by the PIs of the COSMO-SkyMed AO

ASI EO PI Portal

http://eopi.asi.it
DEVELOPMENT OF DEMO SERVICES FOR ENVIRONMENTAL RISK MONITORING

- Floods
- Landslides
- Fires
- Oil Spill
- Coasts
- Earthquakes
- Volcanoes
- Air pollution
- Now-casting
- Coasts
ASI main target is to improve the utilization of existing and planned EO satellite data in order to support users in every phase of risk management cycle and in the environmental monitoring

⇒ pre-operational applications

**Players of this process:**

- Users
- Scientists
- Industries

Focus on the exploitation of EO data in particular the ASI Missions: COSMO-SkyMed (currently operative) and PRISMA (to be launched at the end of 2011).
National Institutional Users:

ASI Pilot Projects on Environmental Risk

SIASGE X+L - X- and L-band SAR study

Provide a complete and detailed definition of EO products:
Aimed at improving the current SIASGE single missions (CSK and SAOCOM) exploitation, including possible commercial applications.

Applications mainly in the field of agriculture, national security and land planning. Obtaining the data combination of the SIASGE missions. Technically innovative.

Provide a demonstrator of the correct definition and technical feasibility by developing/exploiting prototype SW for the products generation.
The COSMO-SkyMed Background Mission can be roughly defined as the plan to be implemented at the lowest level of priority. (i.e. when no further foreground activity is defined)

ASI progressive Background Mission Plans

coverage of:
Main Delta River
Main Wide Urban Areas
1500 Volcanoes
Main Dikes
Tropical Forests
Polar zones

(acquisition modes according to sites/apps - ca. 2700 images)

For the successive phases inputs coming from
Scientists (i.e.: CSK AO needs, IPY needs)
Institutional Users, Commercial users
The CSK dataset for the IPY will be acquired in foreground and background.

**Foreground:**
7 CSK AO Projects focused on IPY topics. (plus 3 CSK AO Projects acquiring on Alps, Iceland, Lapland)

**Background:**
Other acquisitions in Antarctica and Greenland matching the GIIPSY requirements. (Need: inputs from PIs)
### STG: ASI ACTIONS

#### STG 3 – A4: ASI DATA PORTFOLIO. CLOSED on 06.07.2009

#### STG 4 – A1: 4 high priority applications covered by COSMO-SkyMed. CLOSED @ SAR Coo. Meeting #3.

<table>
<thead>
<tr>
<th>Sensors</th>
<th>3-day Arctic Basin Snapshot</th>
<th>Pole to coast InSAR</th>
<th>Greenland – Ice fields</th>
<th>Supersites</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSMO-SkyMed</td>
<td>N/A</td>
<td></td>
<td>Icestreams, Glaciers, velocity fields, Contributions to cover the holes gaps, Inputs from PIs should be considered to implement specific acquisitions in the Background Mission.</td>
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STG C3 – A4: The space agencies should look at punctual events (e.g. Larsen B break-up, Wilkins Ice Shelf) and prepare visuals for the Oslo meeting. On-going

- WILKINS ICE SHELF

GLACIER VELOCITY FIELD
(example of Perito Moreno)
At the end of May ’08 the Wilkins was further reduced of about 160 km$^2$

Work performed with the support of e-GEOS – Luca Pietranera
Ice bridge survived to the disintegrations of the first half of 2008

Between May and July '08 a further disintegration occurred on the Wilkins and a total amount of 1200-1300 km² was lost

100 km long and 2.7 km width (900 m at the narrowest location)
Perito Moreno Glacier

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Automatic derivation of the ice motion field over the Perito Moreno glacier in Argentinean Patagonia.

Spotlight images pairs, with a time interval of:
• 16 days (02-18 February 09);
• 16 days (18 February–6 March 09);
• 8 days (6-14 March 09)
and pixel resolution of 1 meter were used to derive it in the tip of the Perito Moreno glacier.
An accurate co-registration of the image pair is needed considering that the ice surface speed is in the order of few meters per day.

The arrows represent the ice velocity field: different colours are referred to different values of the field (see legend in the figure).
Perito Moreno glacier velocity field (February 02-18 2009)
STG C3 – A7:
The space agencies should specify what they can offer by filling in the table. The deadline is July 15. Filling in the table will show:

1. if the data is acquired
2. what we can generate in terms of input product (what the ground segment can generate – processing to Level 1B)
3. the capacity to generate output products Internally or funding available for contracting-out)
4. distribution
5. availability of input data to scientists
6. integration role.

Column D of the table (labeled ‘Capacity to generate’) can be used to record constraints.

CLOSED on 15.10.09 and on 26.11.09