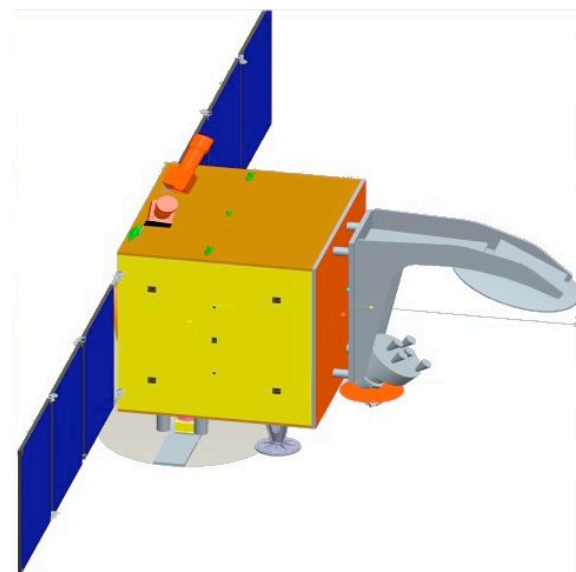
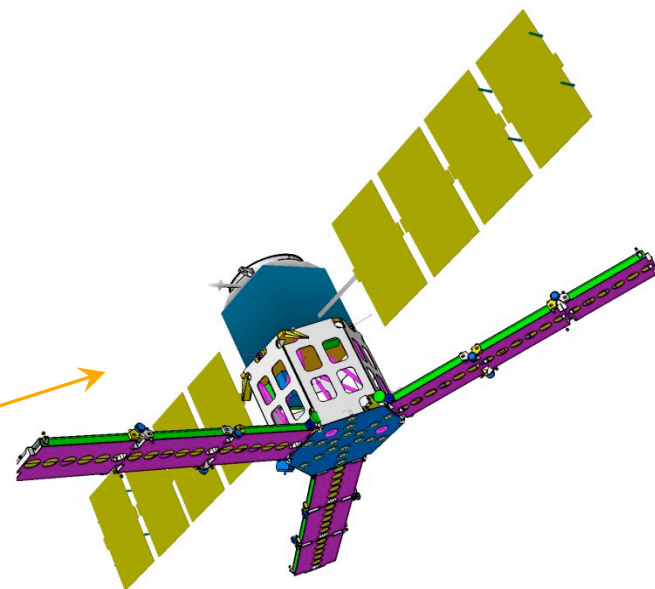
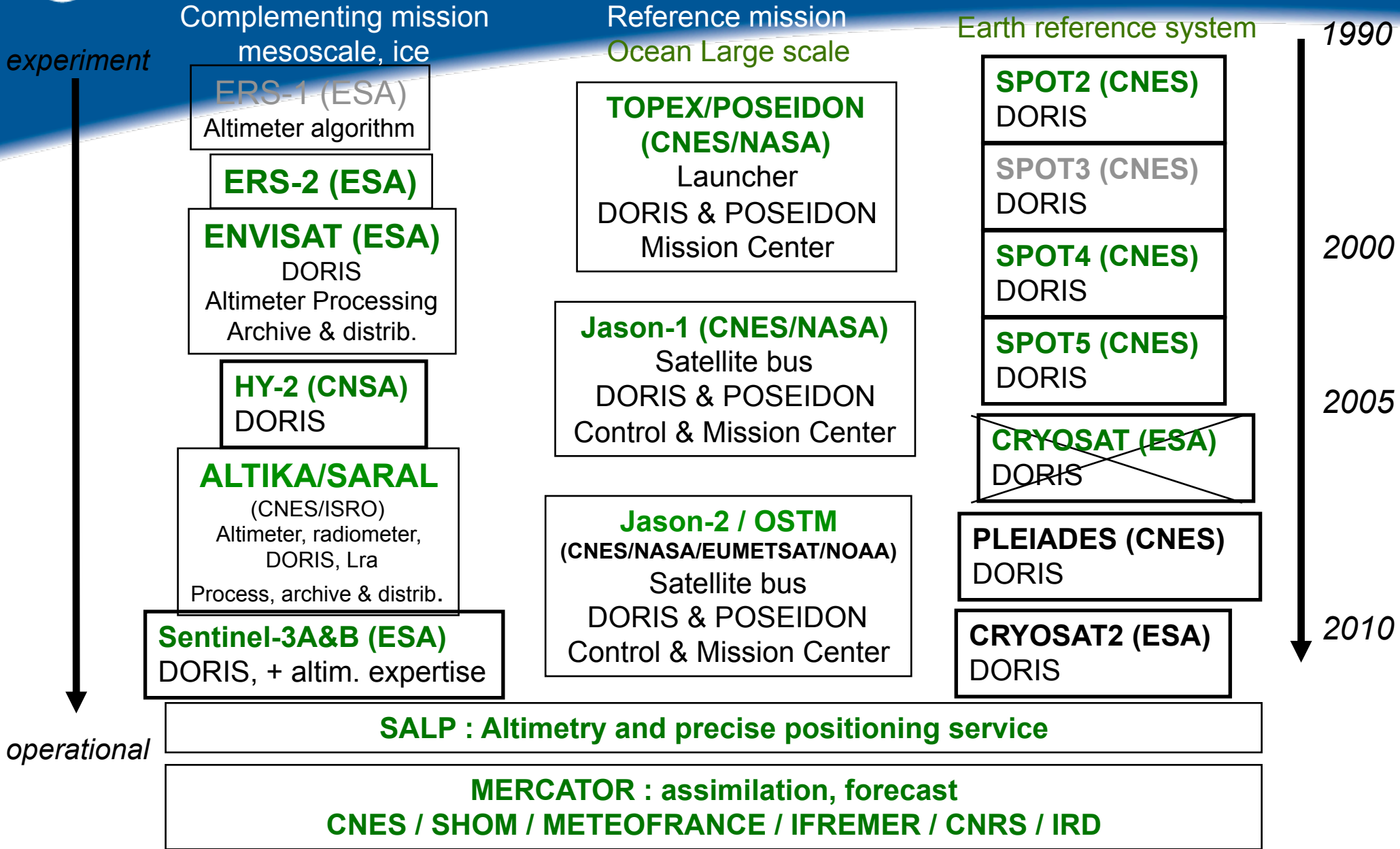


- **Contribute to operational outcome of altimetry :**
TOPEX/POSEIDON => JASON1 => JASON2/OSTM => JASON3
ERS 1 & 2 => ENVISAT => SENTINEL3
+ CORIOLIS, MERCATOR/COO...
- **Continue research activities for future altimetry missions/instruments (AltiKa, WSOA, Water/SWOT,...)**
- **Contribute to space measurements of other ocean physical parameters :**
 - **salinity : SMOS, CNES contribution to ESA project**
 - **directional wave spectrum (SWIM/CFOSAT)** →
 - **ocean colour (SSO or GEO)**
- **Prepare ocean applications of ORFEO (Cosmo SkyMed/ Pleiades) : mainly coastal applications**





■ TOPEX/POSEIDON :

- ◆ Stopped after more than 13 years of ocean observations

■ Jason1: in extended mission, fully operational

■ Jason2 : fully operational

■ ENVISAT

- ◆ excellent synergy with Jason1 (T/P and ERS complementarity further improved)

■ DORIS

- ◆ 6 DORIS receivers simultaneously in flight : earth reference system strengthened

■ MERCATOR

- ◆ inter Agency structure for the implementation of an oceanographic forecasting center in Europe in the mid term (GMES Marine Core Service); leader of MyOcean (EC-FP7 program)

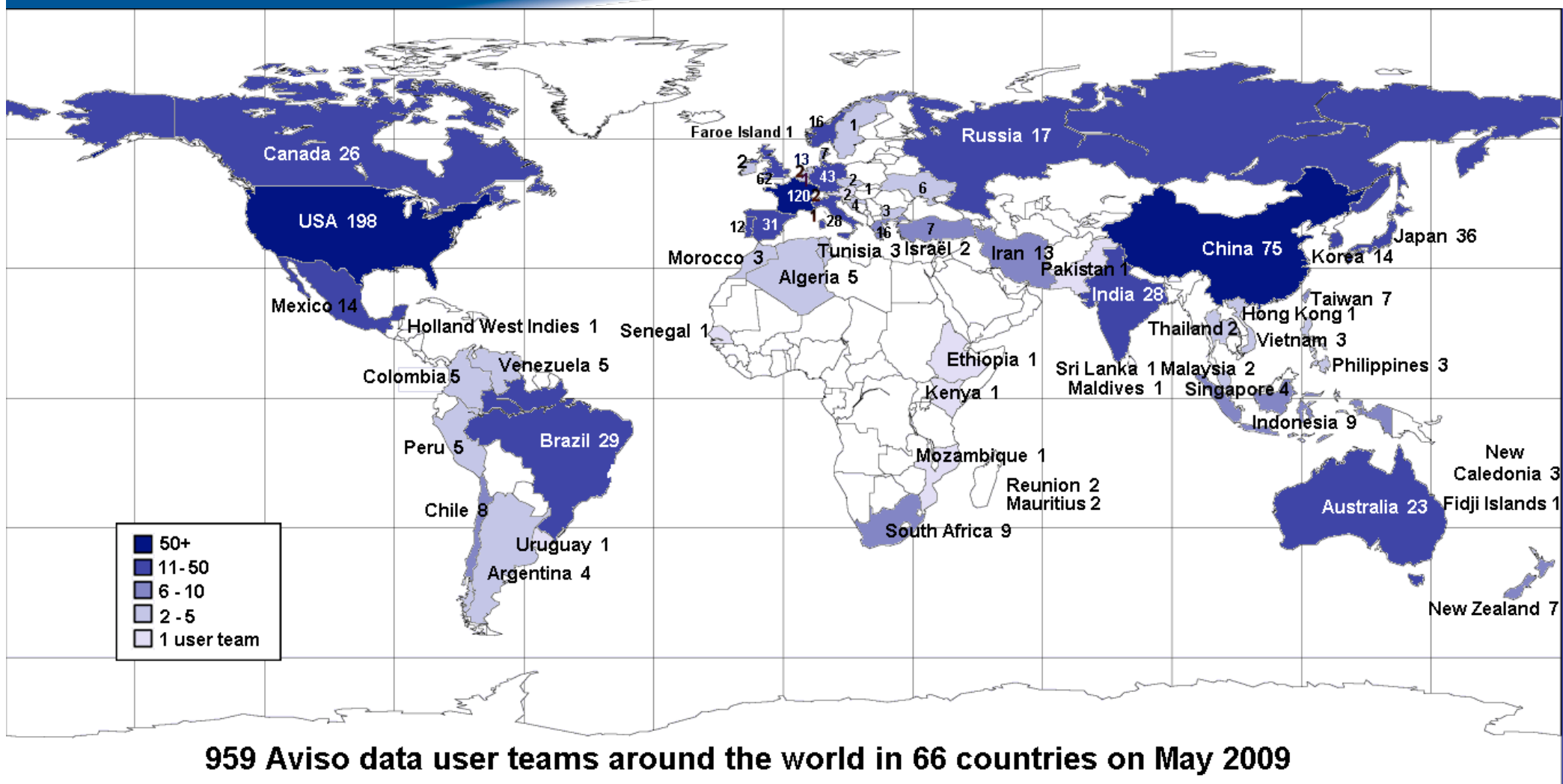
■ AltiKa/SARAL : in development phase. Launch possible from mid to end-2010.

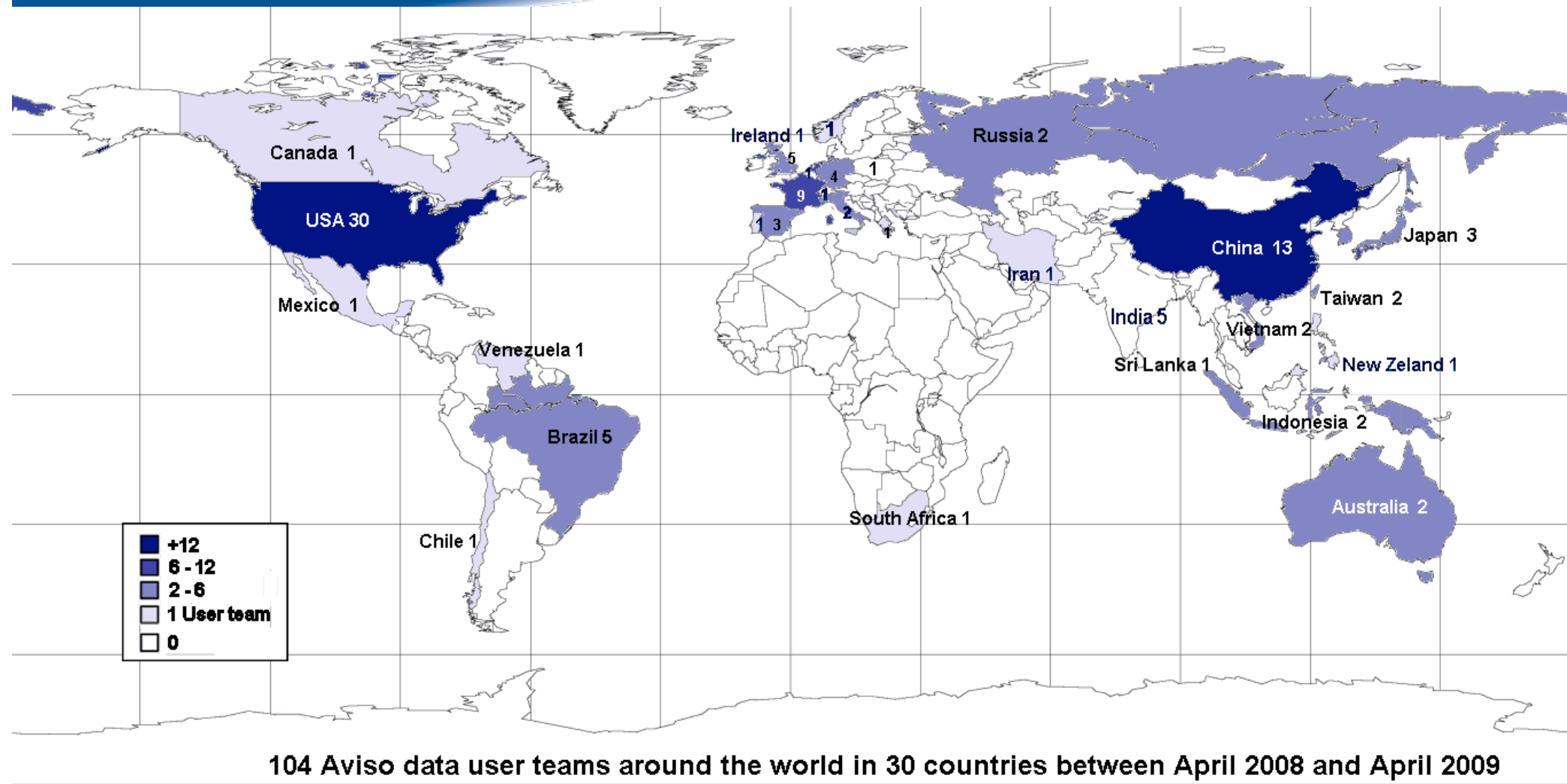
■ SALP/SSALTO/AVISO : multi-mission ground segment

■ Sentinel3A & B : agreement with ESA to embark DORIS

■ HY-2A : agreement with CNSA to embark DORIS

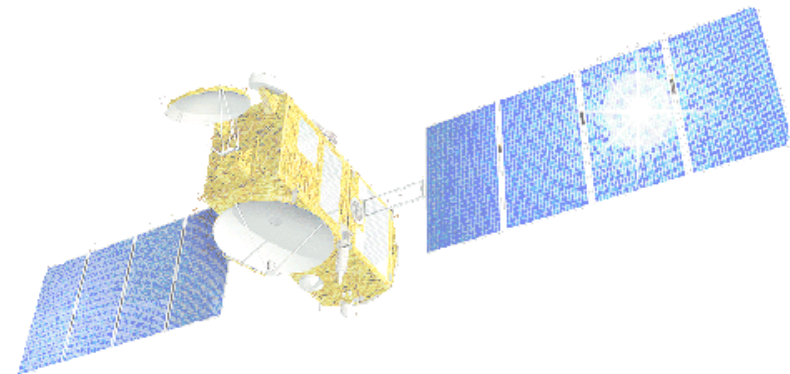
■ Next Step : possible contribution to SWOT (TBD)





- Qualified in orbit
- Operational mission underway
- Products distributed routinely
- CNES operations funded through SALP
- Required lifetime : 3 years (achieved in december, 2004)
- Extended mission: 5 years (achieved in december, 2006)
- Extension agreement for 5 more years of operation signed between CNES & NASA on december, 2006

- Failure of GPS POD TRSR instrument on April 8, 2009.
 - ◆ POD now ensured by DORIS+SLR only (accuracy : ~1.5 cm rms)
 - ◆ No impact on level 1 mission requirements



■ Cooperative Framework between NOAA/ NASA/EUMETSAT/CNES

- ◆ Core mission : continuation of Jason1
- ◆ Technological passengers to enhance DORIS performance (CARMEN2/LPT, T2L2)



CENTRE NATIONAL D'ÉTUDES SPATIALES

■ Launched on june 20, 2008



■ Close tandem mission with Jason-1 for Cal/Val until begin. 2009

■ Excellent performance

■ Improved mission on coast & land areas thanks to new tracking modes

■ Combined J1/J2 mission phase since feb, 2009

■ ...and welcome to Rosemary Morrow !





■ Program approved on december, 2005

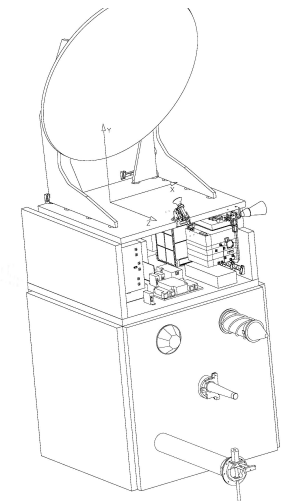
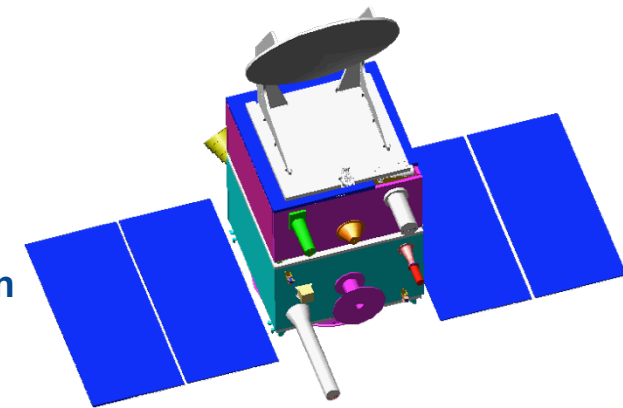
- ◆ Altimetric Gap filler between ENVISAT & SENTINEL3
- ◆ Research oriented mission :
 - new, higher frequency, greater performance
 - potential new applications on ice, land, coastal areas
- ◆ ...but with a consolidated architecture : conventional altimeter

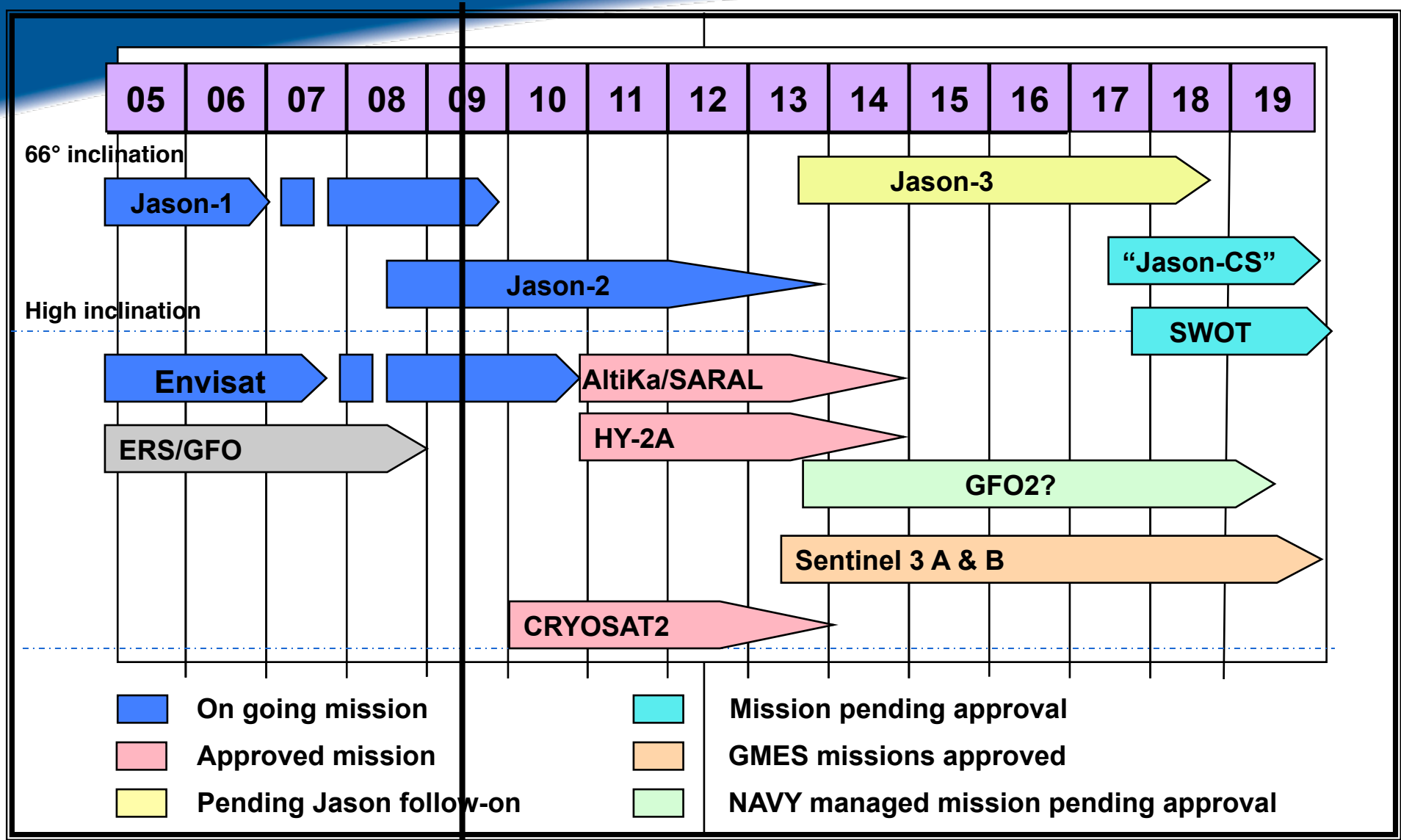
■ Cooperative framework : CNES/ISRO

- ◆ Confirmation of CNES&ISRO cooperation on this new baseline obtained on December 2006 : SARAL mission (Satellite with ARGOS & ALtika)
- ◆ CNES/ISRO MOUs signed in february, 2007
- ◆ Tentative launch date : end-2010

■ Data policy : ~ the same as JASON missions (through CNES/ISRO RAs)

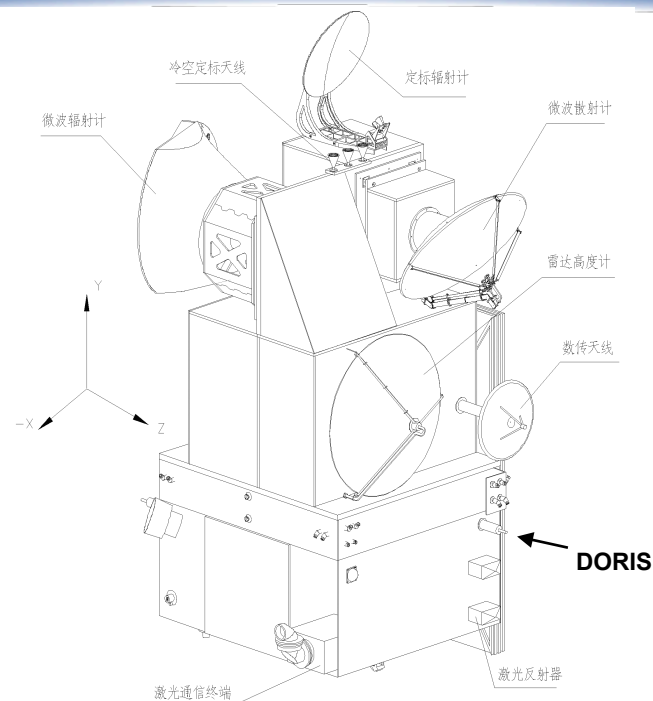
- ◆ *Fisrt India/France scientific workshop held on 22-24 april in Ahmedabad*
- ◆ *International Research Announcement planned in autumn 2009*





■ HY-2A : CNSA program with CNES contribution

- ▶ Payload : Dual frequency altimeter, nadir 3-frequency radiometer, 5-frequency scanning radiometer, scanning scatterometer, +DORIS/GPS/LRA
- ◆ Orbit : SSO 6am-6pm, 14 days (after 1-year geodetic mission)
- ◆ Launch : june 2010



■ JASON3 : (Cnes position)

- ◆ Operational mission : not funded by R&D agencies
- ◆ NOAA/EUMETSAT cooperation with CNES, NASA, EC & ESA contributions
- ◆ CNES in-kind contribution : Proteus platform and project team equivalent to JASON/OSTM (i.e. about one third of European part of the program)
- ◆ Launch : mid-2013 ?

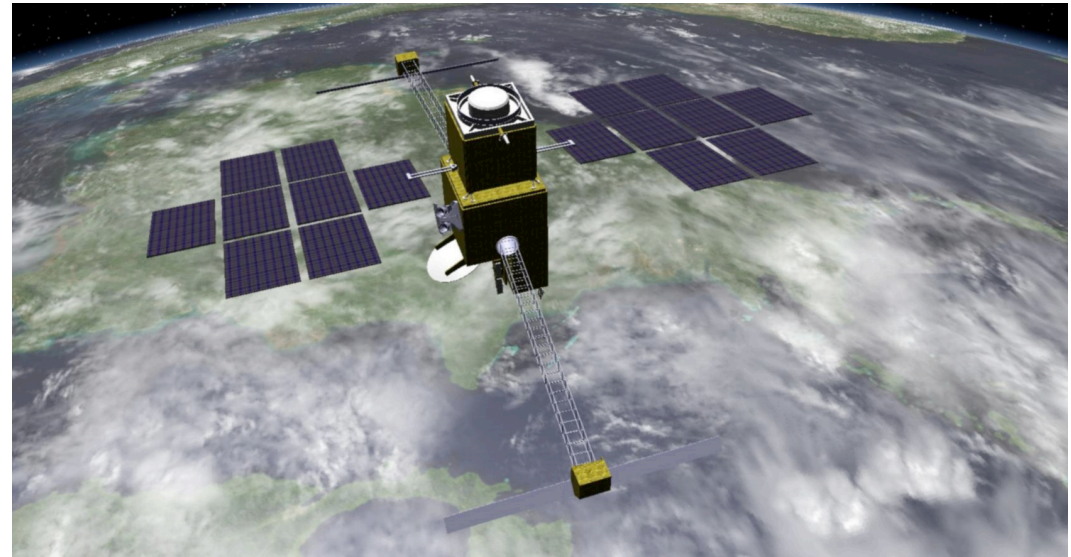
■ and contributions to ESA/EC missions : Cryosat2, Sentinel3



- Mission combining research needs associated to hydrology and oceanography :
 - mapping of water level for rivers, lakes, and oceans (including coasts)

- Principle : Wide-swath interferometric, Ka-band altimeter

- Recommended by the US Decadal Survey



- Recommended in the frame of the Cnes Scientific Prospective Seminar (march, 2009)

- Cooperation scheme between NASA & CNES : TBD

- Phase 0 in 2007, pre-phase A & phase A in 2008/2009

- Launch possible in ~2016-2018

