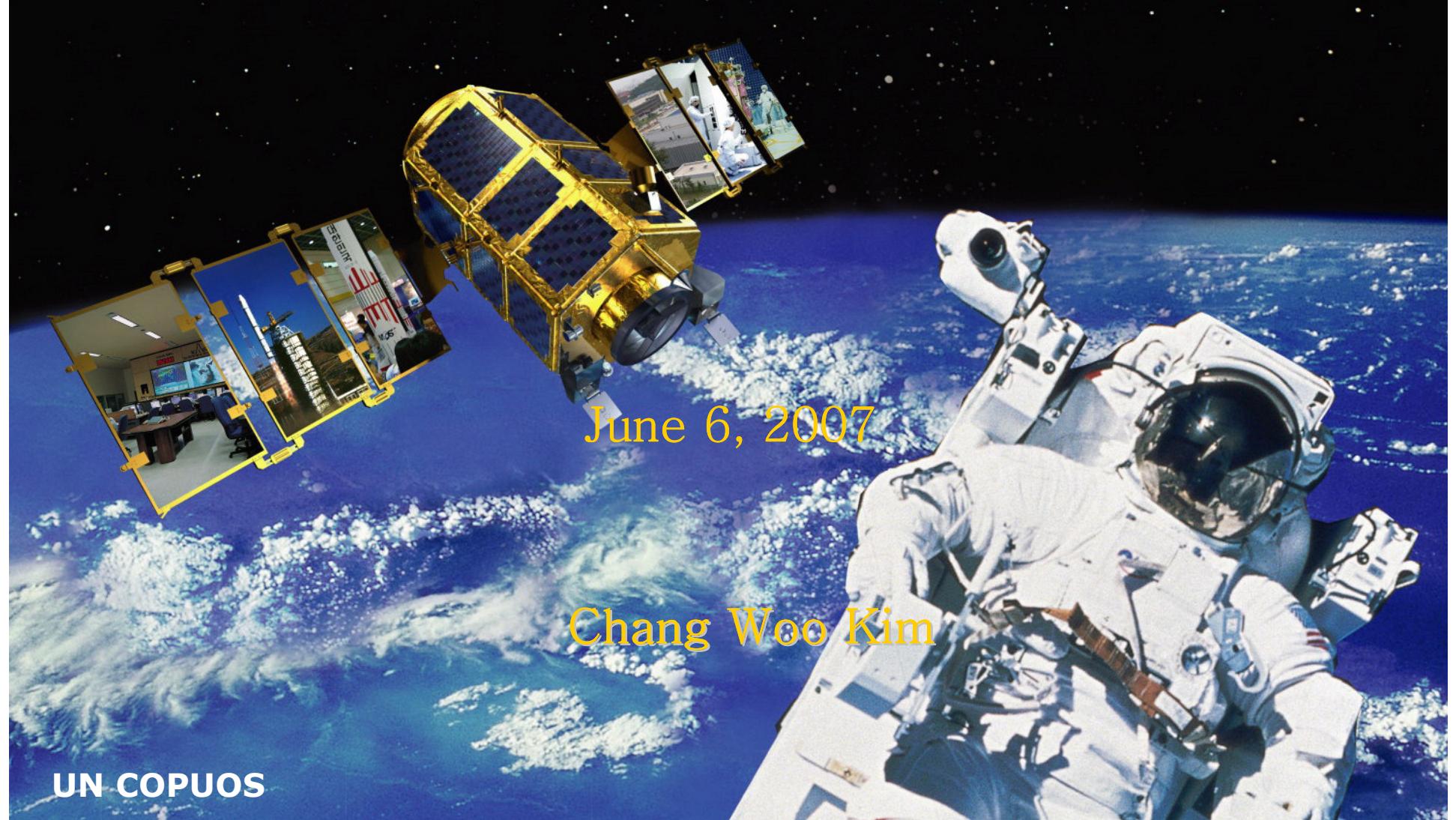


Korean Perspectives in Space Development





I National Space Program

1. Space Organizations and Institutes
2. National Space Program
3. Revised Program in 2005

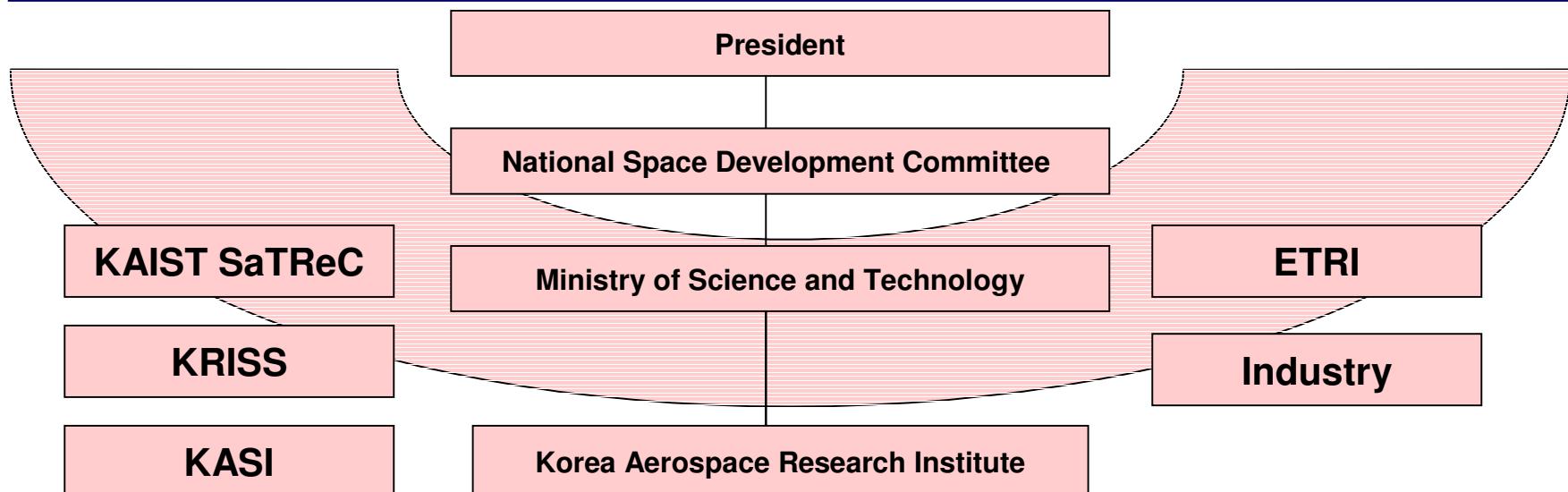
II Main Program and Plan

1. Satellite
2. Space Launch Vehicle
3. Others

III Korean Perspectives

1. Space related Organizations & Institutes

- Ministry of Science & Technology is main government body for space development
 - MOCIE, MIC, MOMAF etc.
- KARI is major research Institute under the MOST for space development (600 employee , US\$300M)





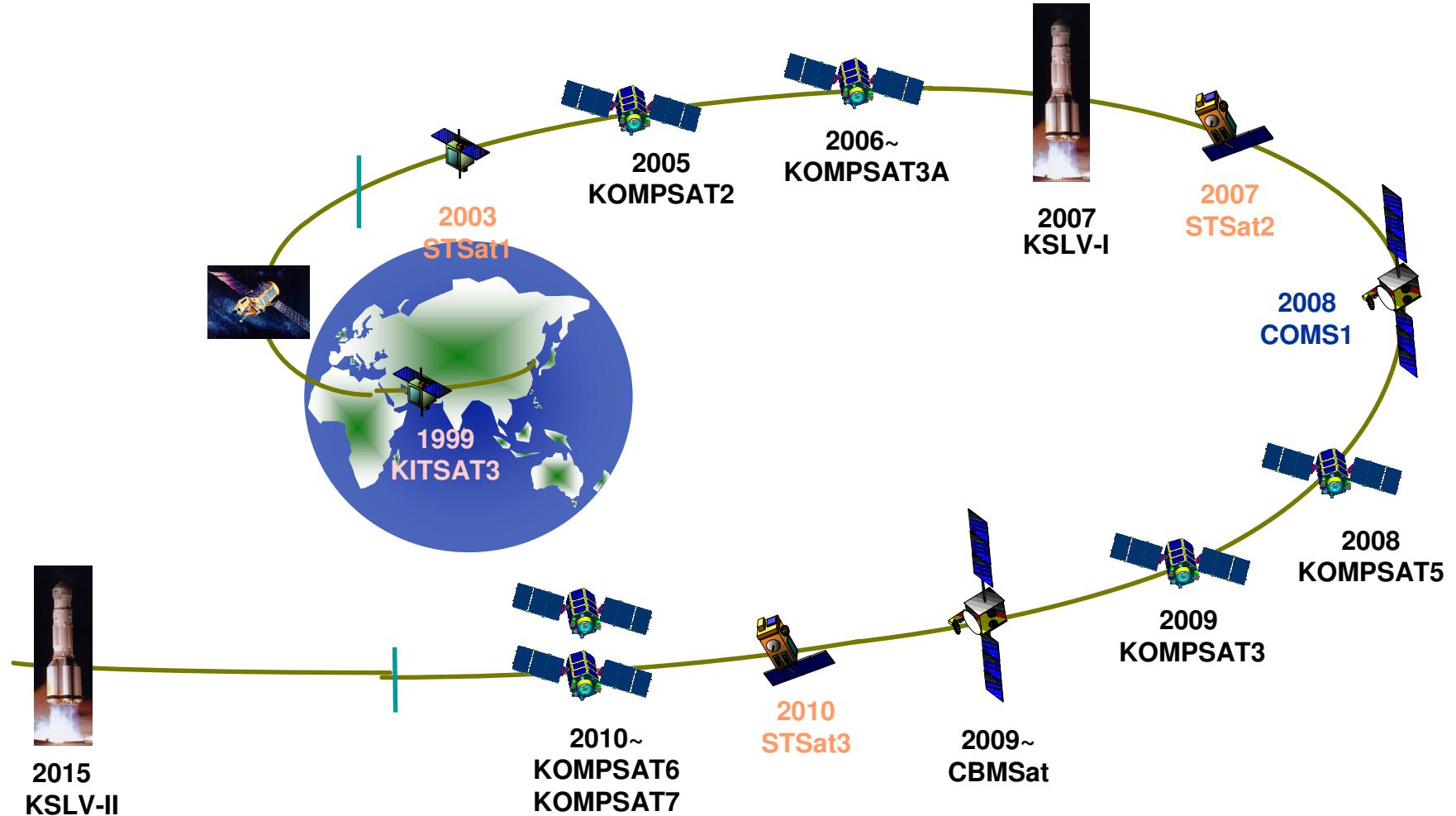
2. National Space Program

Space

National Space Development Plan (2005)

- Develop 13 Satellites by 2010
 - 7 KOMPSAT Series : Remote Sensing
 - 4 Scientific Satellites : Scientific Experiment, Technology Test
 - 2 GEO Satellites : Comm., Ocean Monitoring, Meteorology
 - Develop Space Launch Vehicles for LEO Satellites
 - 100 kg payload by 2007 ➔ 1.5 ton by 2015
 - Construct Space Center for Launching Satellites
- * The National Space Development plan is now under revision and will be announced in the end of this month.

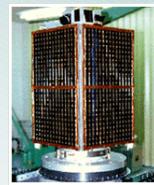
3. The National Space Program (2005)



Achievements



KSR-I



KITSAT-2



KITSAT-1



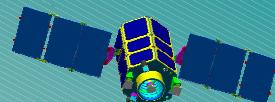
KSR-II



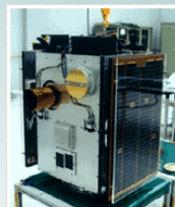
KOMPSAT-1



KSR-III



KOMPSAT-2



KITSAT-3



STSAT-1

1992

1993

1997

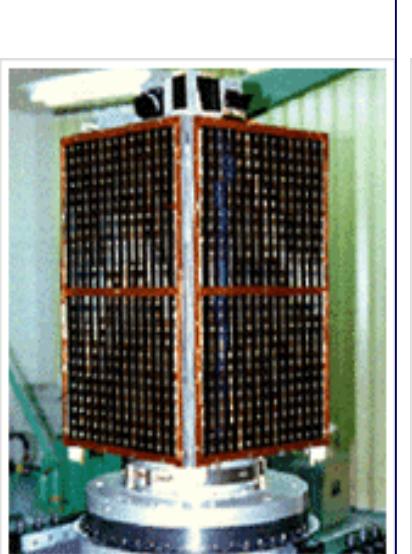
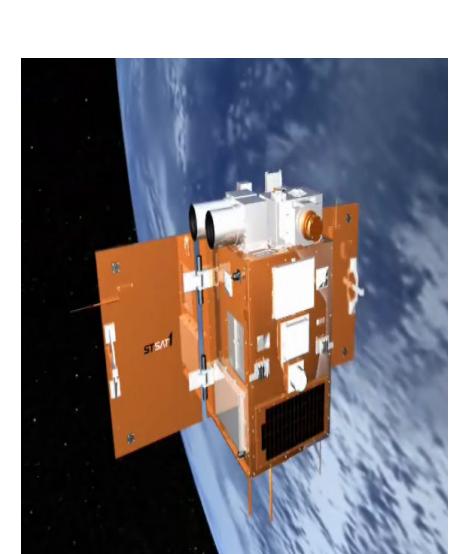
1999

2002

2003

2005

1. Satellite

KITSAT-1	KITSAT-2	KITSAT-3	STSAT-1
			
<ul style="list-style-type: none">● Launched in 1992● Scientific Research● Weight 50kg	<ul style="list-style-type: none">● Launched in 1993● Scientific Research● Weight 50kg	<ul style="list-style-type: none">● Launched in 1999● Scientific Research● Weight 110kg	<ul style="list-style-type: none">● Launched in 2003● Science Research● Weight 106kg

1. Satellite

■ KOMPSAT-1



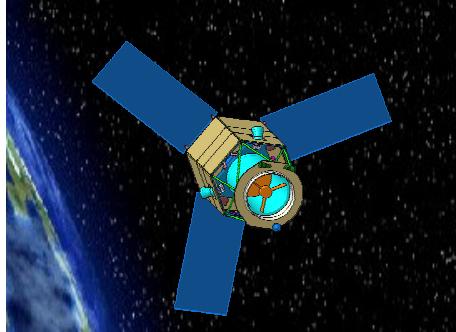
■ KOMPSAT-2



- Launched in Dec. 1999
- Panchromatic 6.6m
- Weight 460kg

- Launched in Jul. 2006
- Pan. 1m, Color 4m
- Weight 800kg

1. Satellite



■ Development of KOMPSAT-3

- Goal : to develop high-resolution optical monitoring satellite
- Period : 2004~2011
- Spec. : panchromatic 0.7m, color 2.8m, swath 15km, weight 800kg

■ Development of KOMPSAT-5

- Goal : to develop high-resolution all-weather SAR satellite
- Period : 2005~2010
- Spec. : SAR image resolution 1m, swath 5km, weight 1,300kg

■ Development of COMS

- Goal : to develop a geo-stationary orbit satellite with communication/ocean/meteorological monitoring
- Period : 2003~2009
- Spec. : monitoring within 10 minutes under the bad weather, communication and ocean monitoring, weight 2,500kg

■ KOMPSAT Image Comparison

6.6m res.
< KOMPSAT-1 >1m res.
< KOMPSAT-2 >0.7m res.
< KOMPSAT-3 >



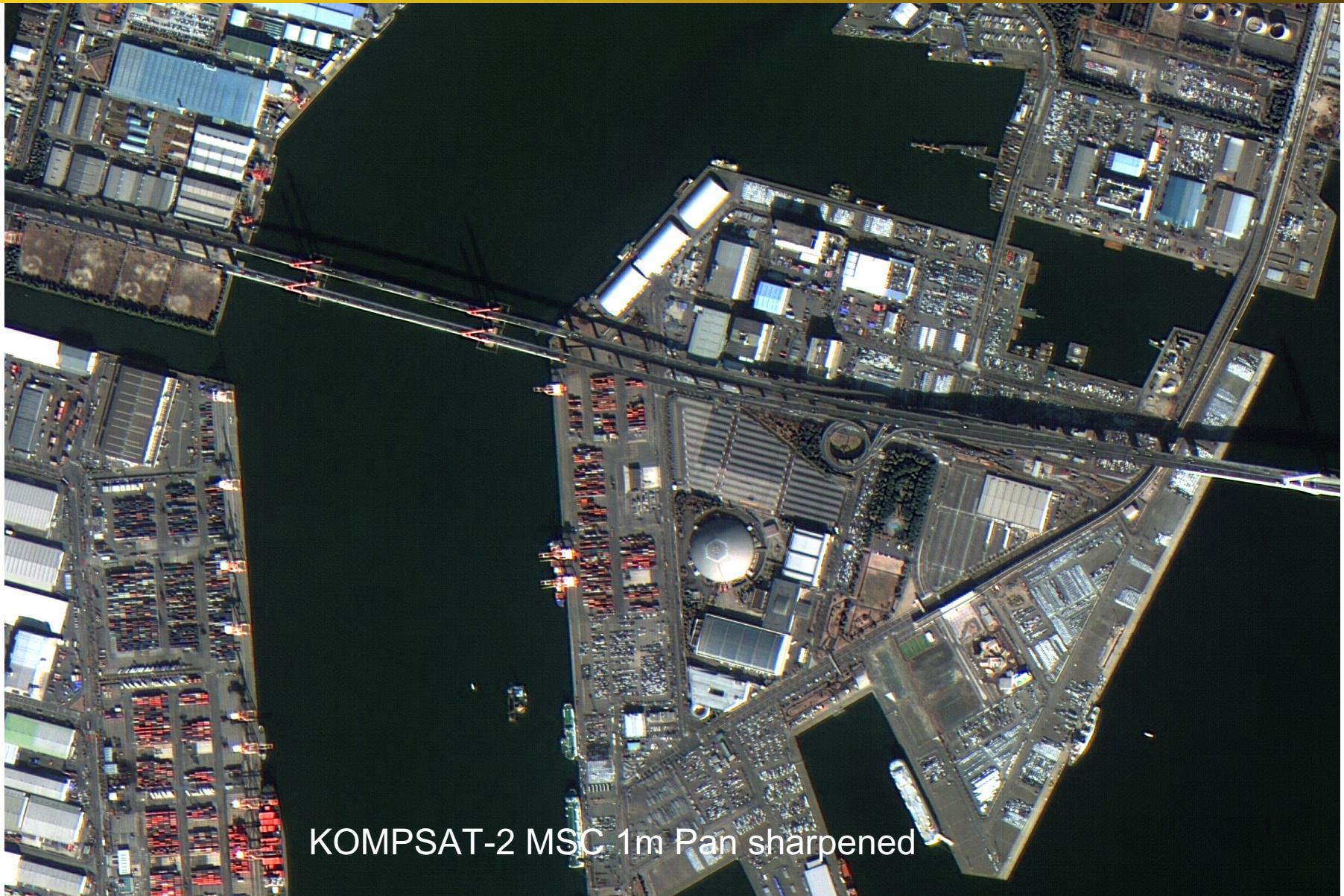
Ministry of Science
& Technology



KOMPSAT-2 MSC 1m Pan sharpened



Ministry of Science
& Technology



KOMPSAT-2 MSC 1m Pan sharpened



Ministry of Science
& Technology



KOMPSAT-2 MSG 1m Pan sharpened



Ministry of Science
& Technology



KOMPSAT-2 MSC 1m Pan sharpened

2. Launch Vehicle

KSR-1 Sounding Rocket



KSR-2 Sounding Rocket



KSR-3 Sounding Rocket



- Launched in Jun. 1993
- 1 staged solid motor
- Flight : 101.2km
- Weight : 1,268kg

- Launched in Jul. 1997
- 2 staged solid motor
- Flight : 123.9km
- Weight : 2,048kg

- Launched in Nov. 2002
- Liquid engine
- Flight : 79.5km
- Weight : 6,000kg

2. Launch Vehicle



■ Development of Small Satellite Launcher [KSLV-I]

- Goal : development of launcher with the payload of 100kg
- Period : 2002~2008
- Spec. : 1st stage liquid, 2nd stage solid motor,
total weight 140ton, length 33m, 300x1,500km elliptical orbit



■ Development of KSLV-I Payload, STSAT-2

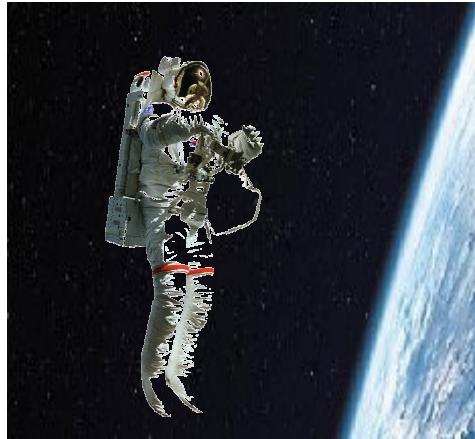
- Goal : experimental satellite with 100Kg class low earth orbit
- Period : 2002~2008
- Spec. : measuring precise orbit of ST-SAT 2,
monitoring the radiant energy in the air and ground



■ Construction of Space Center

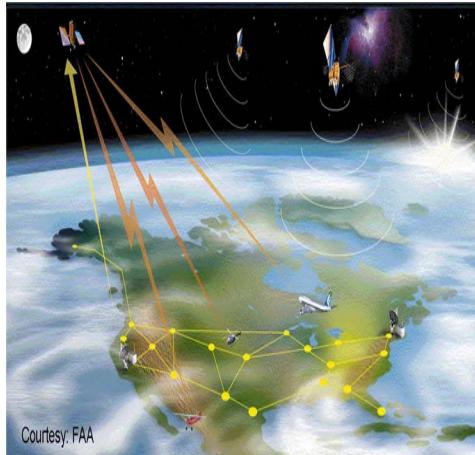
- Goal : construction of Space Center
- Period : 2000~2007(1st stage)
- Spec. : gross area 5 million square meters,
capability to launch 100kg class LEO satellite

3. Other Areas



■ Korean Astronaut Project

- Goal : to send the first Korean astronaut for performing space science missions
- Period : 2005~2008
- Mission : 1 person, on-board Soyuz, stay in ISS in Apr. 2008



■ National GNSS Navigation Project

- Goal : to construct the national navigation infrastructure by joining the GALILEO project
- Period : 2007~2014
- KARI Mission: establish precision of location 1m and application system



1. Driving Factors for the Space Development

- **Space Technologies play a pivotal role for the sustainable development of Korean society;**
 - o Saving people from natural and man-made disasters by providing the relevant information (earth observation, weather monitoring, etc.)
 - o Strengthening technological capabilities,
 - o Broadening business opportunities for the future,
 - o Raising awareness of the public, particularly the young generation, on the importance of science and technology.
- **Based on the technologies Korea has accumulated, Korea is considering to participate in the space exploration through the international cooperation program.**
 - ☞ It will be reflected in the new space development plan.



2. Challenges and Opportunities for International Cooperation

- Developed countries can share its vision for the future of human kind, its resources including cutting-edge technologies and research funds.
- Developing countries can also get benefits through international cooperation particularly in the space exploration, because it gives;
 - o the opportunities to participate in this new area with the affordable amount of budget,
 - o the chance to learn new technologies for the next generation,
 - o the ways for building scientific communities and eventually to build human resources for the next generation.
- Non space fairing countries also can participating in the space science and space application areas for the future potential demands

3. Implications for the developing countries

Space is promising area, but it requires long experiences and high costs.
Korean experience shows some implications for the developing countries;

- **Long-Term National Plan based on the articulated R&D Budget plan,**
- **Clear national goals based on ‘selection and concentration’ strategy**
- **Building infrastructure including human resources and R&D institute**
- **Balancing between technology development & space application**
- **Understanding international law and export control system**
- **Participating in the international cooperation program,
particularly in space application & space science program,**
- **Getting the public supports for the space program**



4. Recommendations for International Communities

Developed countries need to support developing countries through;

- **Sharing their experiences and know-how,**
- **Providing space information and data at an affordable price,**
- **Promoting multilateral cooperation in humanitarian areas,**
- **Promoting joint ventures with developing countries.**

UN COPUOS actively needs to discuss ways to promote international cooperation between countries

- **Space Treaties, Space Asset Protocol, UNISPACE Recommendations.**

UN OOSA needs to support the developing countries especially in terms of capacity building and information sharing.

Thank You!

