

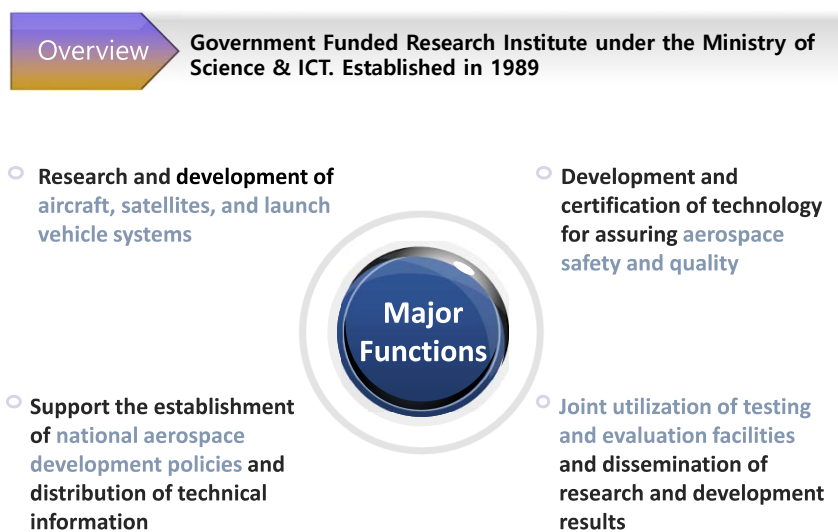
Drafting Committee for the '*Asia-Pacific Plan of Action for Space Applications for Sustainable Development (2018-2030)*'

'Republic of Korea'

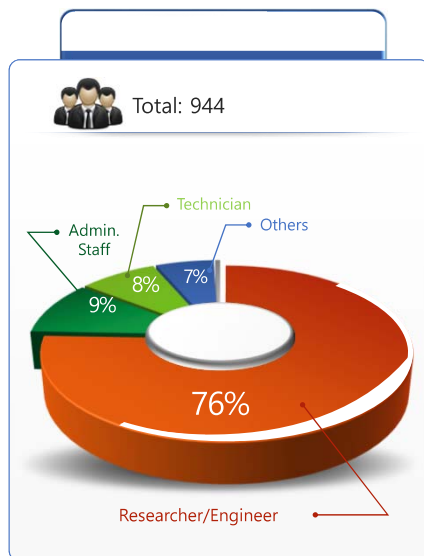
Bangkok, Thailand
31 May - 1 June 2018

김1

KARI Introduction



KARI Introduction



※ 2017. 6.1

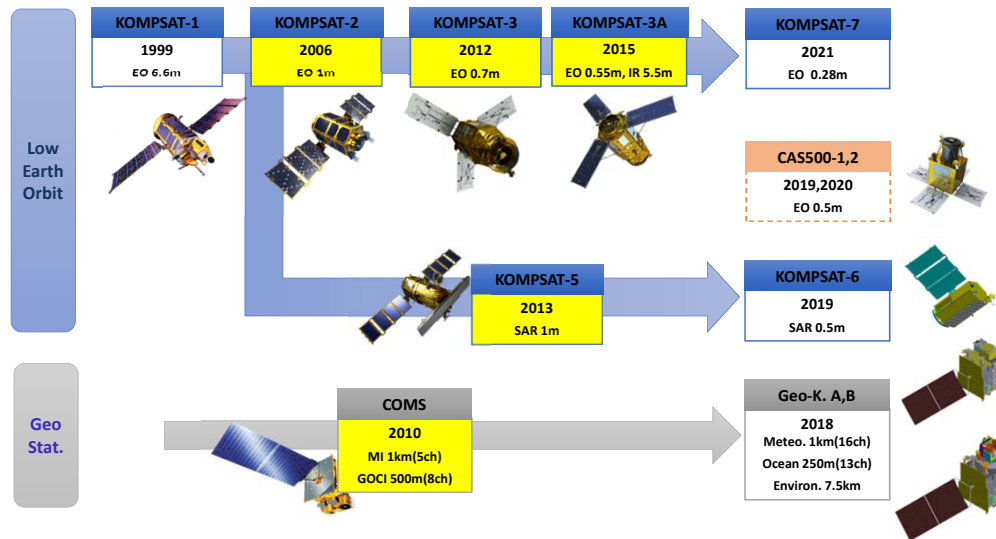


※ 2017. 6.1

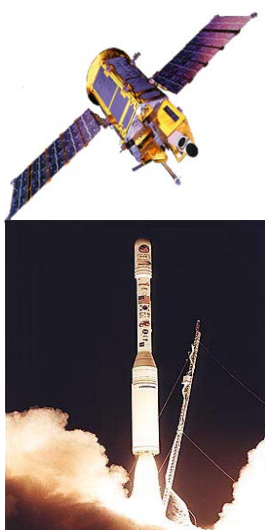
KARI Introduction



KARI Introduction

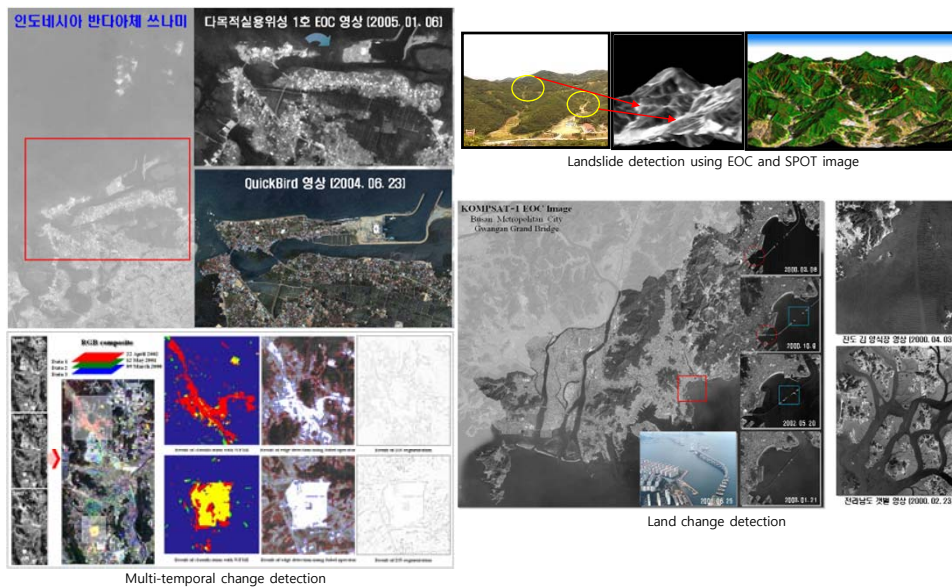


KARI Satellites and it's Applications

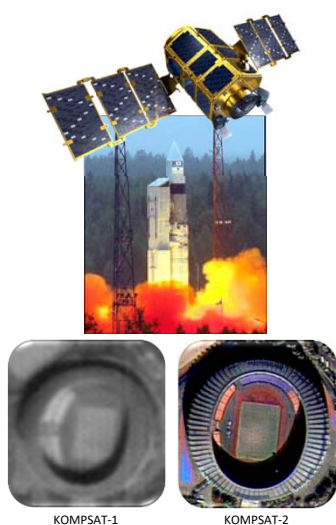


- KOMPSAT-1 accommodates three instruments for the mission of cartography, global biological oceanography, and space environmental monitoring, respectively.
- Development period : 1994.11 – 2000.1
- Joint development with TRW
- KOMPSAT-1 is in a sun-synchronous orbit with the following orbital parameters;
 - Mass : about 470 kg
 - Altitude : 685 km
 - Inclination angle : 98.127 degree
 - Local time of ascending node : 10:50 a.m.
 - Repeating ground track : 28 day
- Main payload : EOC(6.6 m), OSMI(1 km)
- Launch : 21 December 1999
- Mission close : 2008. 2

KARI Satellites and it's Applications

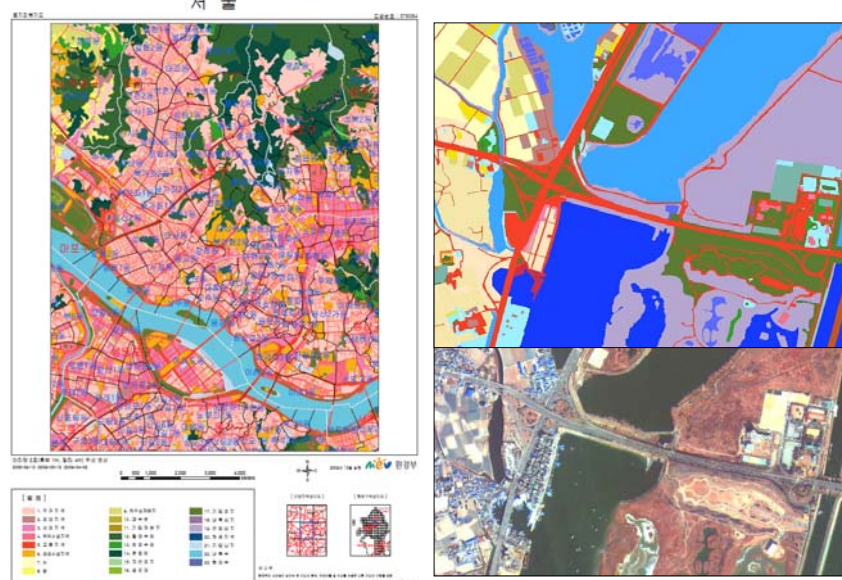


KARI Satellites and it's Applications

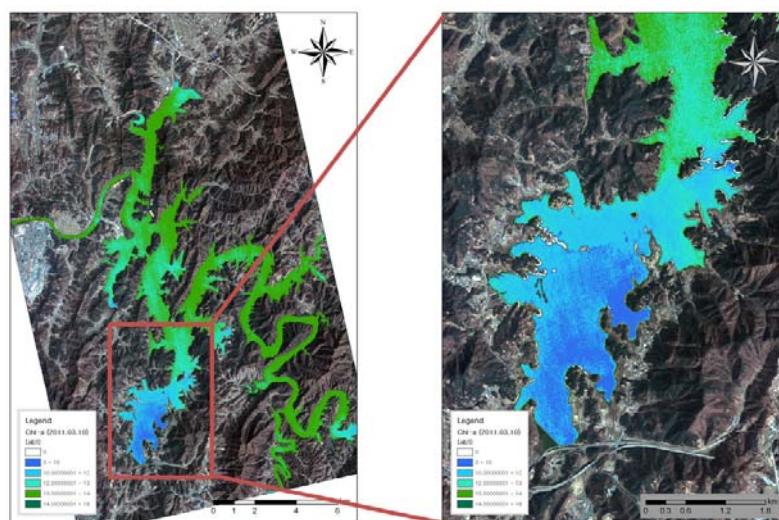


- KOMPSAT-2 is an in-country development program to enhance the capabilities of satellite manufacturing technology in Korea.
- Development period : 1999.12 – 2006. 11
- Joint development of payload with ELOP
- KOMPSAT-2 is in a sun-synchronous orbit with the following orbital parameters;
 - **Mass : about 800 kg**
 - **Altitude : 685.13 km**
 - **Inclination angle : 98.127 degree**
- Main payload
 - **1 m panchromatic**
 - **4 m multispectral**
- Launch : 28 July 2006
- Mission close : 2015. 10

KARI Satellites and it's Applications

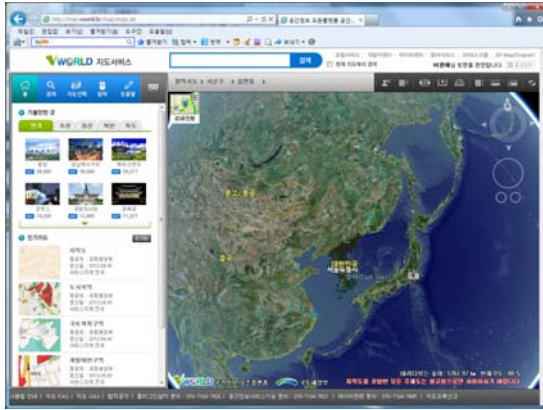


KARI Satellites and it's Applications



Chl-a image(2011. 3. 10)

KARI Satellites and it's Applications



Spatial Information Open Platform

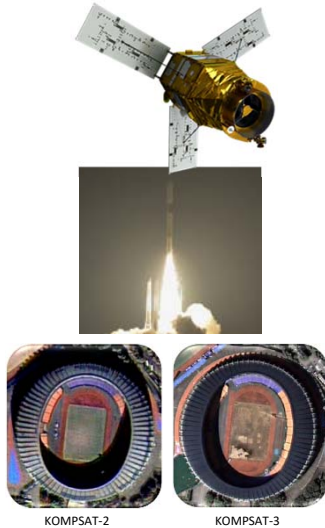


KARI Satellites and it's Applications



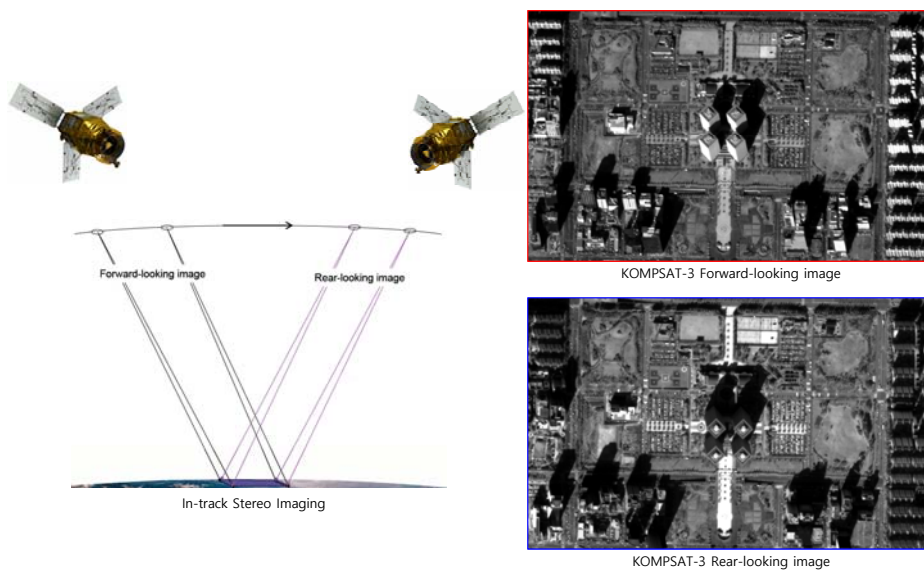
Update of digital topographic map using KOMPSAT-2 image

KARI Satellites and it's Applications

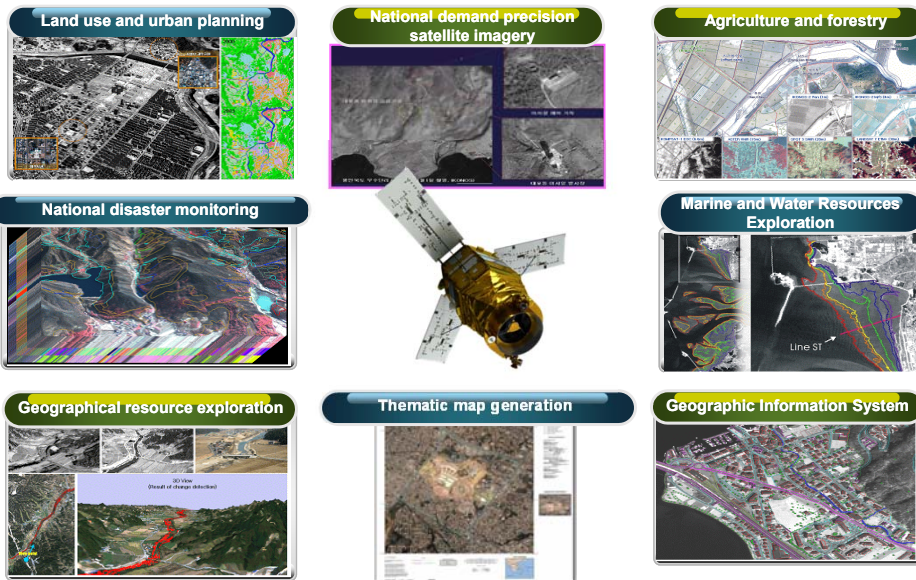


- Mission objectives
 - Continuation of earth observation satellite after KOMPASAT-1 and KOMPASAT-2 to meet national need.
 - Provision of the high-resolution EO (Electro-Optical) image required for GIS establishment and the applications in environment, agriculture and ocean.
- Development period : 2004.8 – 2012.8
- Main payload: Advanced Earth Imaging Sensor System
 - **0.7 m panchromatic image**
 - **2.8 m multispectral image**
- Launch: 18 May 2012, Currently normal operating

KARI Satellites and it's Applications



KARI Satellites and it's Applications



KARI Satellites and it's Applications



- Mission objectives (**GOLDEN** mission)
 - **G**IS : acquisition of independent high resolution SAR image
 - **O**cean & **L**and Management : survey of natural resources
 - **D**isaster & **E**nvironmental Monitoring : surveillance of large scale disasters and its countermeasure
- Development period : 2005 – 2013
- Mission lifetime : 5 years
- Main payload : COrea SAR Instrument (COSI) – X band
 - HR imaging mode: UH, EH, HR
 - ST imaging mode: ES, ST
 - WS imaging mode: EW, WS
- Launch : 22 August 2013, Currently LEOP

KARI Satellites and it's Applications

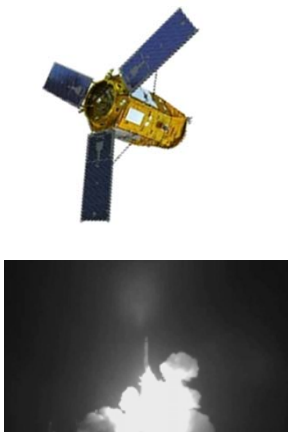


SAR imagery of flooding of Brisbane on 11 January 2011



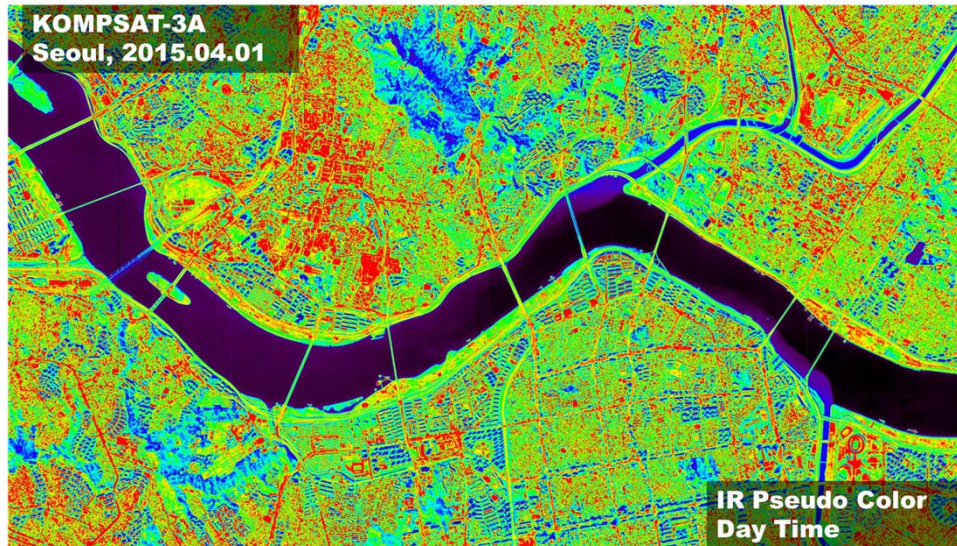
SAR imagery of flooding of Brisbane on 12 January 2011

KARI Satellites and it's Applications

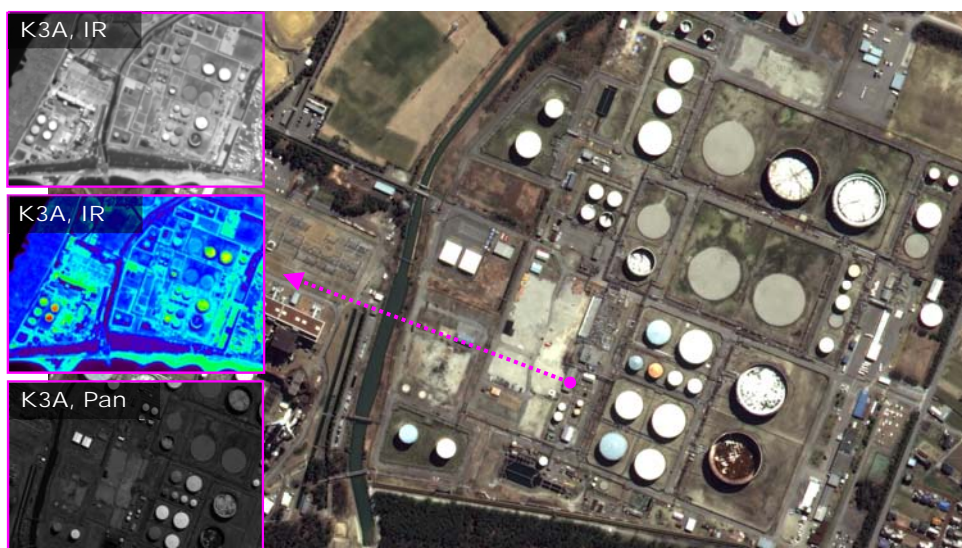


- Mission objectives
 - Continuation of earth observation satellite and provision of the high-resolution EO (Electro-Optical) image as well as Infra Red image
- Orbit characteristics
 - **Altitude : 528 km**
 - **Inclination angle : 97.5 degree**
 - **LTAN : 13:30**
- Main payload: Advanced Earth Imaging Sensor System-A
 - **0.55 m panchromatic image**
 - **2.2 m multispectral image**
 - **5.5 m MWIR image**
- Launch: 25 March 2015, Currently normal operating

KARI Satellites and it's Applications



KARI Satellites and it's Applications



Satellites Information utilization Consultation Body for governmental agencies

- Instruction of Ministry of Science and ICT
- Priorities of data delivery
 - National issues such as large-scale disasters
 - Multi-department cooperation such as pan-government utilization
 - Continuous monitoring of national territory and environment
 - Other simple one-time utilization
- Affiliated agencies
 - 27 agencies including Ministry of Unification, of Foreign Affairs, of Interior and Safety, of Agriculture, Food and Rural Affairs, of Trade, Industry and Energy, of Strategy and Finance, of Environment, of Land, Infrastructure and Transport, of Oceans and Fisheries, Korea Coastguard, National Fire Agency, Rural Development Agency, Statistics Korea, Forest Service, Korea Meteorological Administration, National Disaster Management Institute etc.

Satellites Information utilization Consultation Body for governmental agencies

협의체 영상제공 현황

연도	표준영상(장)					고부가영상(장)			배포수량
	K1	K2	K3	K5	K3A	K2	K3	K3A	
2011	0	0	0	0	0	751	0	0	751
2012	0	288	0	0	0	5,587	0	0	5,875
2013	0	638	167	0	0	2,472	179	0	3,456
2014	0	533	388	3	0	4,560	283	0	5,767
2015	300	538	822	55	0	5,020	804	0	7,539
2016	288	1,371	543	166	345	3,476	500	135	6,824
2017	0	2,002	2,937	470	4,682	5,620	439	170	16,320
합계	588	5,370	4,857	694	5,027	27,486	2,205	305	46,532

※ '17년은 남대서양 사고선박(스텔라 데이지호) 수색지원으로 인해 배포수량 급증



사용자교육 지원



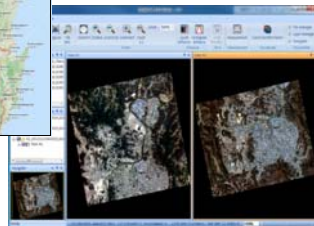
분과/연례회의



세미나/활용워크숍



위성정보 유통시스템 지원



위성정보 활용기술 개발 및 지원

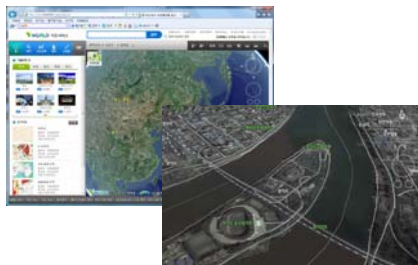
Satellites Information utilization Consultation Body for governmental agencies



접근불능지역 지도경신(국토지리정보원)



DMZ 접경지역 토지피복 분류(환경부)



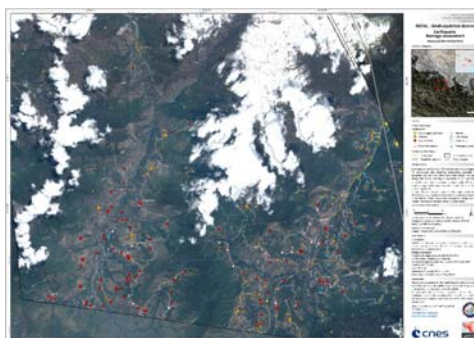
공간정보 오픈플랫폼 접근불능지역 서비스(국토부)



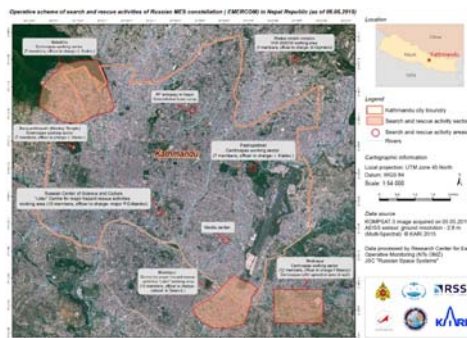
원격탐사기반 경지면적조사(통계청)

International Charter and Major Disaster

- Satellite images are used to analyze large earthquake damage and recovery plan in 2015, Nepal



Residential Damage Analysis(Pleiades-1B)



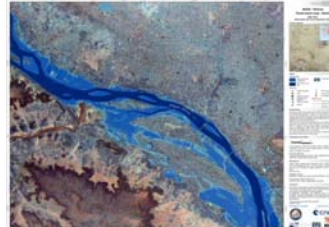
Recovery Plan (KOMPSAT-3)

출처: International Charter on Space and Major Disasters
(KOMPSAT-3 영상 KARI 제공)

International Charter and Major Disaster



아리랑2호 영상기반의 홍수 피해 지도 (아프리카 차드)



아리랑2호 영상기반의 홍수 범람 지도 (아프리카 니제르)



※ ('13) 32 ⇒ ('14) 52 ⇒ ('15) 76 ⇒ ('16) 504 ⇒ ('17) 589

KARI Challenges

KARI's difficulties

- *Diverse Ministries are responsible for applications*
- *Most of the officers do not have knowledge about satellite data*
- *KARI is mainly development institute*
- *The important task of our center is to distribute the data itself, not solutions*

General Challenges

Most of the users have difficulties such as

- *Uncertainty in Continuity of Satellite Data*
- *Difficulties Finding and Access Data*
- *Lack of Satellite based Solutions*
- *Unstable Demand by Users*

Thank you your attention!