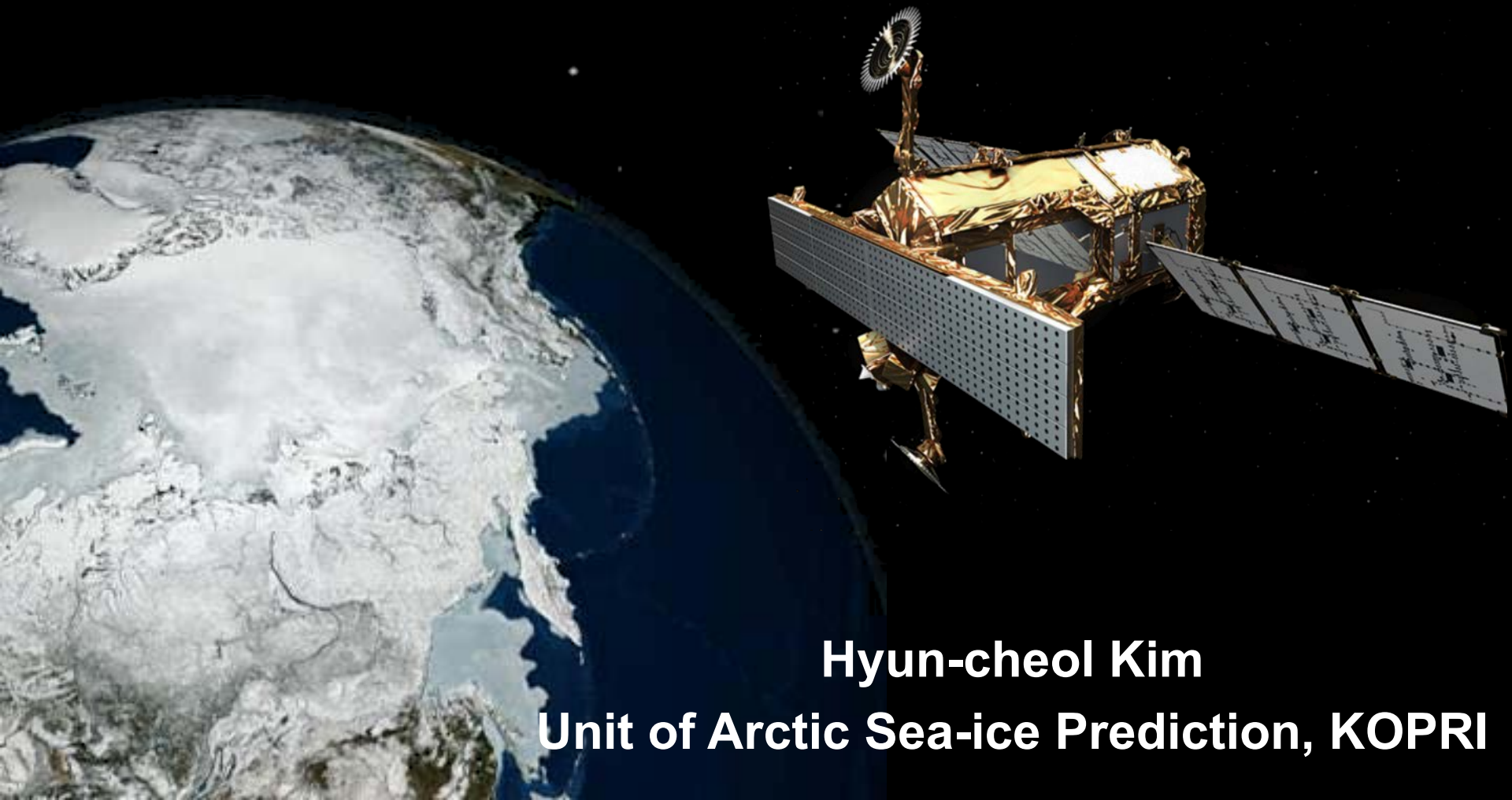
KOPRI activities
New project for sea-ice monitoring

Research on analytical technique for satellite observation of Arctic Sea-ice



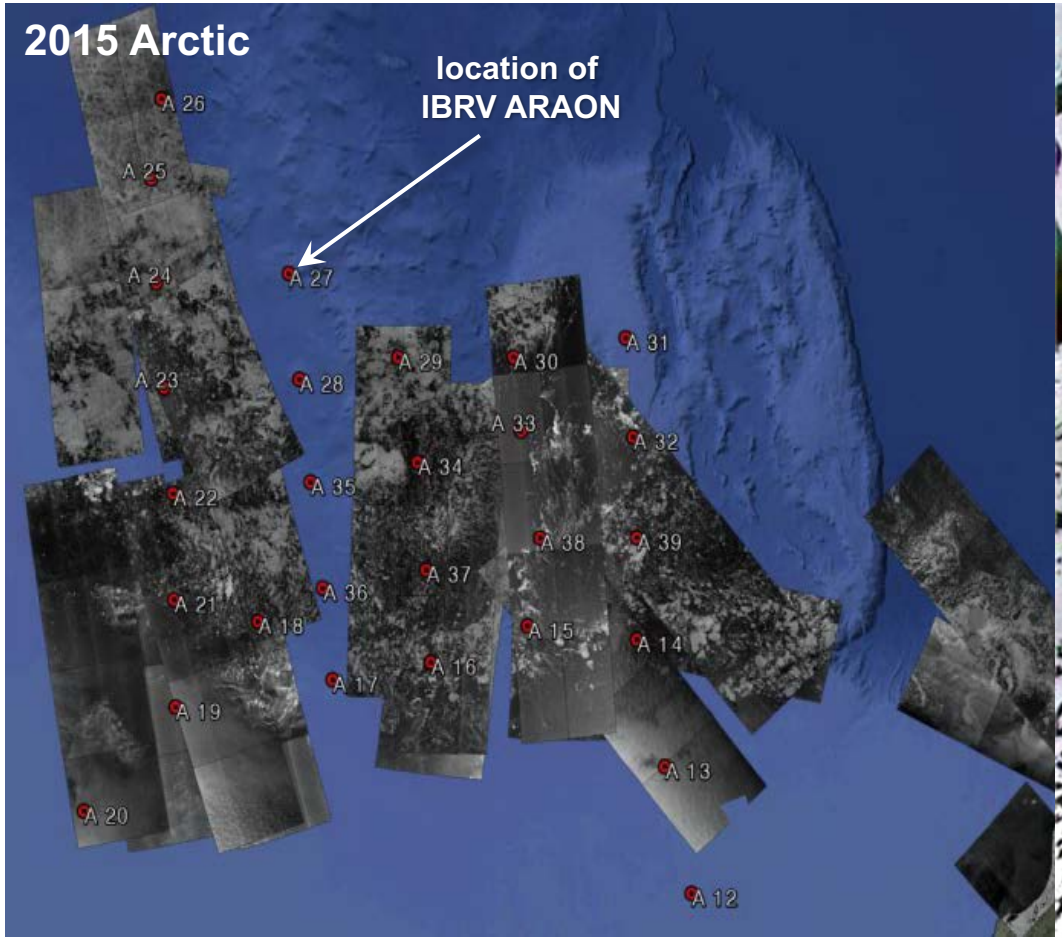
Hyun-cheol Kim

Unit of Arctic Sea-ice Prediction, KOPRI

New Project

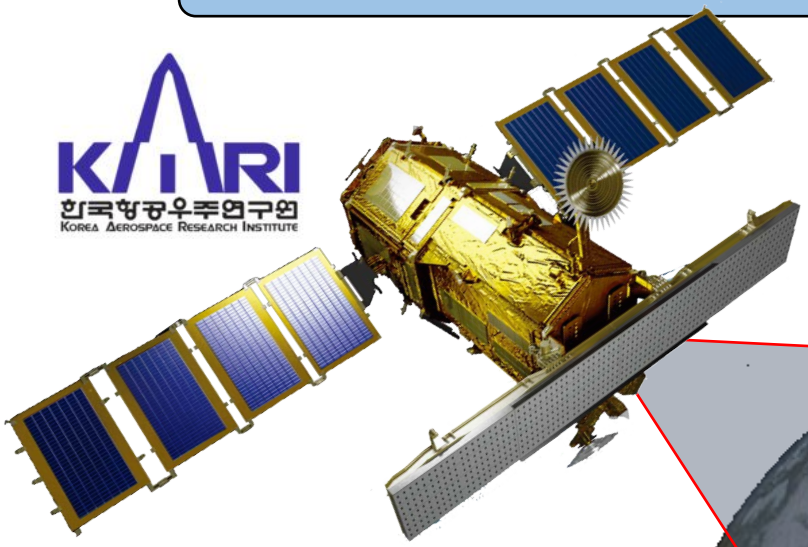
- **Purpose**
  - Development of analytical techniques for satellite observation on Arctic sea ice
  - Arctic sea satellite observing network by 2025
- **Research contents**
  - Analytical techniques for satellite data process
  - Korean satellite data archive/manage system
  - International network for satellite observing
- **Budget and Period**
  - Three million USD / Year
  - First stage: 2017-2019

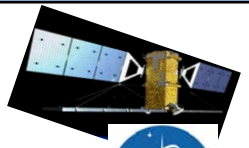
Korean Satellite

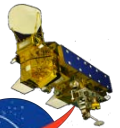


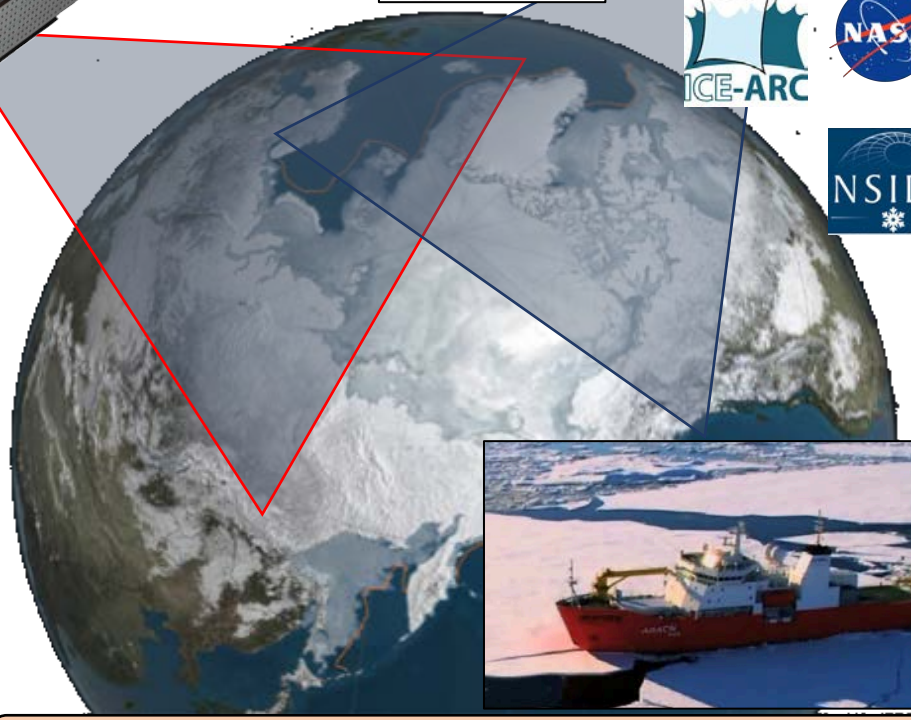
- 2015 Summer Arctic sea expedition
  - KOMPSAT-2 160 scenes
  - KOMPSAT-3 130 scenes
  - KOMPSAT-5 SAR 135 scenes

International Arctic sea satellite observing network









Polar View

DLR

CSA ASC

ICE-ARC

NASA

NSIDC

JAXA

Korean Satellite Data processing

KARI 한국항공우주연구원 Korea Aerospace Research Institute

KOPRI 극지연구소

KiSTi www.kisti.re.kr 한국과학기술정보연구원 Korea Institute of Science and Technology Information

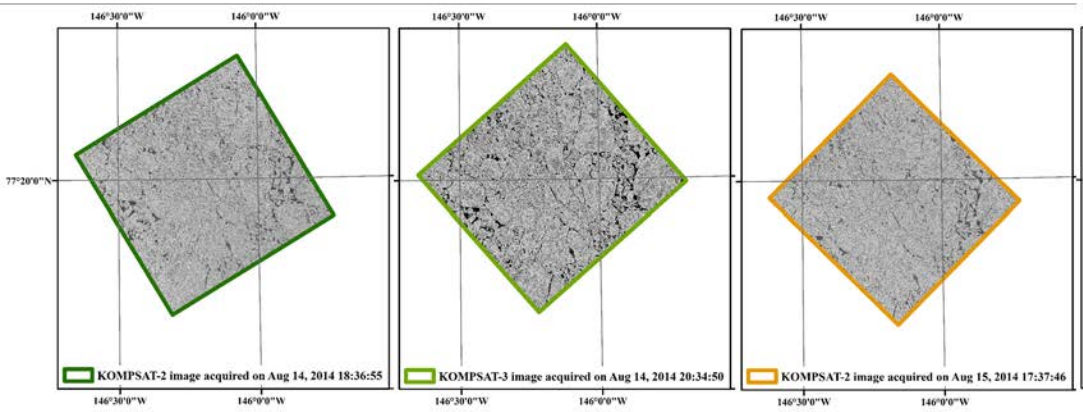
Internal network

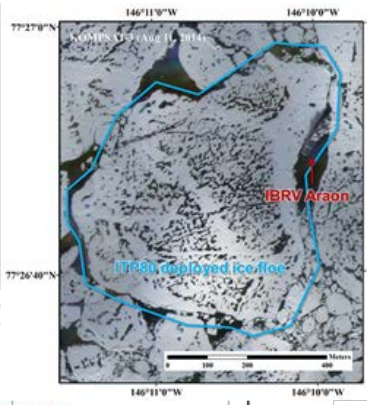
Arctic sea expedition by Ice Breaker

Northern Route Monitoring

Sea-Ice

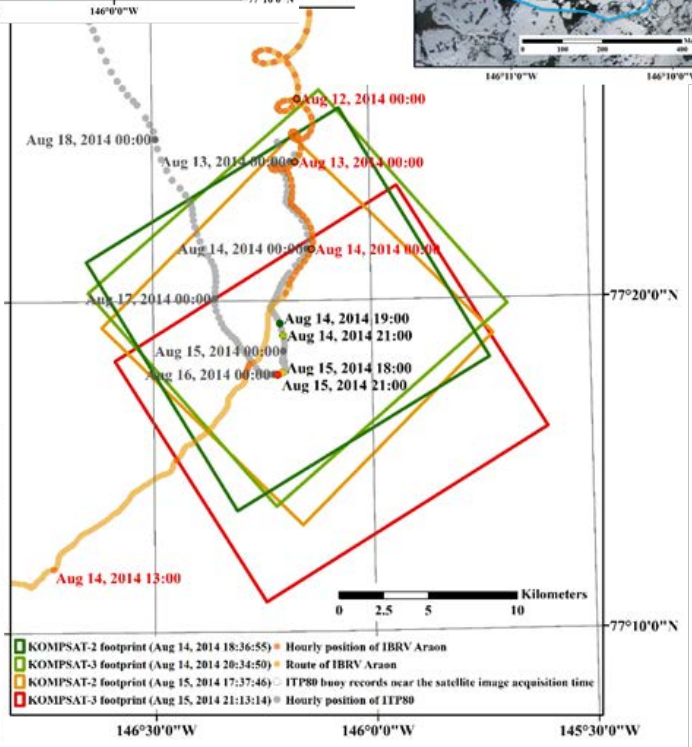
Sea-ice moving detection:



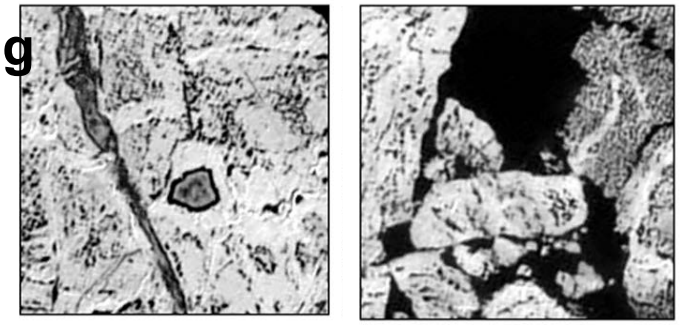


- **Time series optical data**

Image pair	Image pair interval
K2 (Aug 14) – K3 (Aug 14)	01:57:55
K3 (Aug 14) – K2 (Aug 15)	21:02:56
K2 (Aug 15) – K3 (Aug 15)	03:35:28
K2 (Aug 14) – K2 (Aug 15)	23:00:51
K3 (Aug 14) – K3 (Aug 15)	24:38:24
K2 (Aug 14) – K3 (Aug 15)	26:36:19

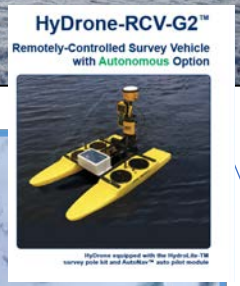


- **Block Matching**

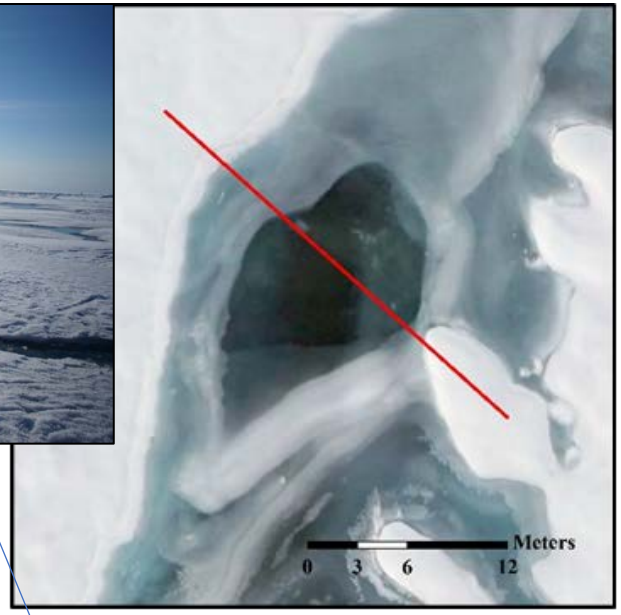


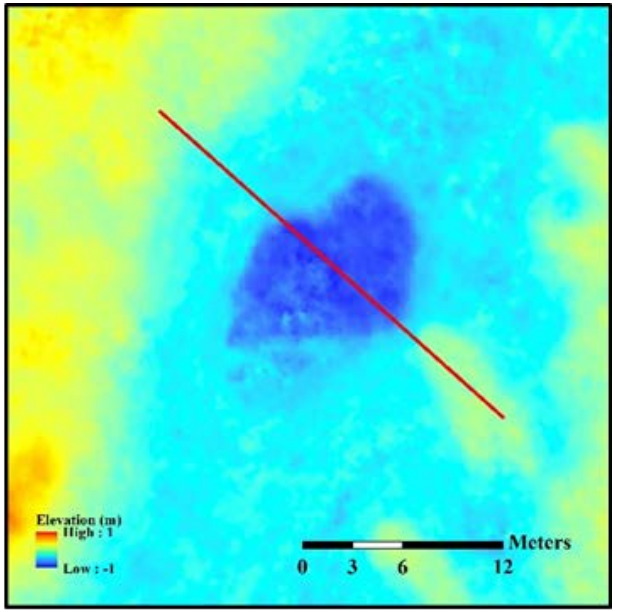
Sea-Ice

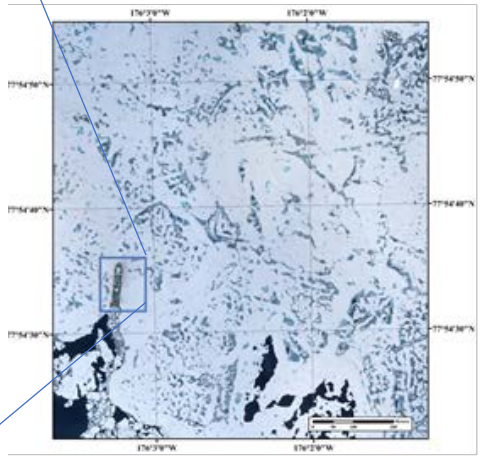
ICE CAMP:

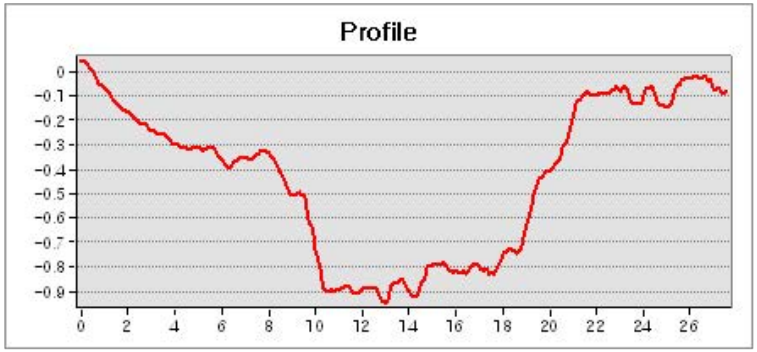


UAV application-Through-water photogrammetry









Refraction correction

Ocean Color CAL/VAL
Bio-Optical Properties

KOPRI 극지연구소

Abundance:
Chlorophyll-a, Particles

IOP's:
Absorption by CDOM, SS, CHL

AOP's:
HPRO II (Ed, Lu, Es @ 350-800nm)
- Free-falling Optical Profiler

HSAS (Li, Lt, Es @ 350-800nm)
- Hyperspectral-Surface Acquisition System
- Above water optical system