

# OSMI Applications Overview

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# Introduction

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- **Since the successful launch of KOrea Multi-Purpose SATellite-1 (KOMPSAT-1) on Dec. 21, 1999, the Ocean Scanning Multi-spectral Imager (OSMI) aboard KOMPSAT-1 has been observing the global ocean.**
- **KARI distributed the OSMI data to government agencies, government-supported research institutes and universities for public use. And Korea Aerospace Industries (KAI) undertook the data dissemination for commercial use.**
- **To promote the development of remote sensing technology using the KOMPSAT-1 data, KARI has been collaborating with three research groups, each representing land applications, marine applications, and meteorological applications.**
- **Although much effort has been made in the calibration and validation of OSMI data, they have been successfully used to monitor yellow dust, forest fire, red tide, and typhoon. The cross-calibration efforts in collaboration with the NASA SIMBIOS team are successful and expected to bring more outcomes related to the ocean color research. Anyone interested in OSMI data for research purpose, please contact Dr. Yongseung Kim at [yskim@kari.re.kr](mailto:yskim@kari.re.kr).**
- **The presentation will highlight some of OSMI data applications and introduce the future ocean color mission.**

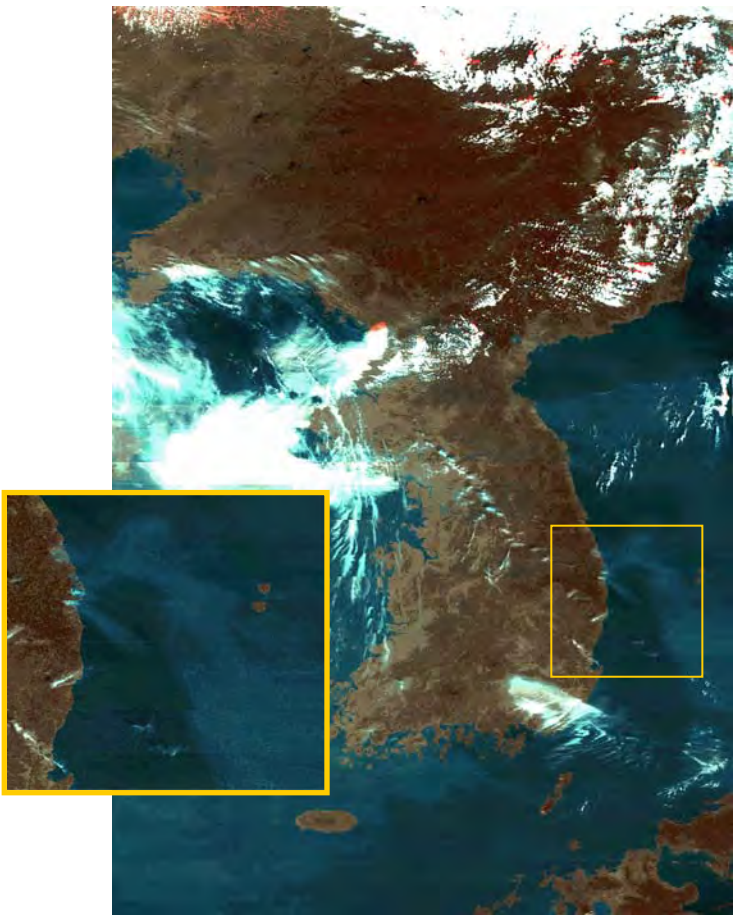
# KOMPSAT-1 Overview

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- Development Period : 1995 ~ 1999
- Joint development with TRW
- Payload Instruments
  - EOC: Panchromatic Camera,  
GSD= 6.6 m, swath=17 km,  
Quantization=8 bits
  - OSMI: Ocean Color Imager with 6 band  
GSD=1 km, swath=800 km,  
Quantization=10 bits
  - SPS : Space Physics Sensor
- Satellite Spec.
  - 3 Axis Stabilization
  - 470 kg mass, 600 Watt power
- KOMPSAT-1 was launched successfully  
in Dec. 1999 and is now normal operation

# Disaster Monitoring



April 13, 2000



March 13, 2002

# Disaster Monitoring

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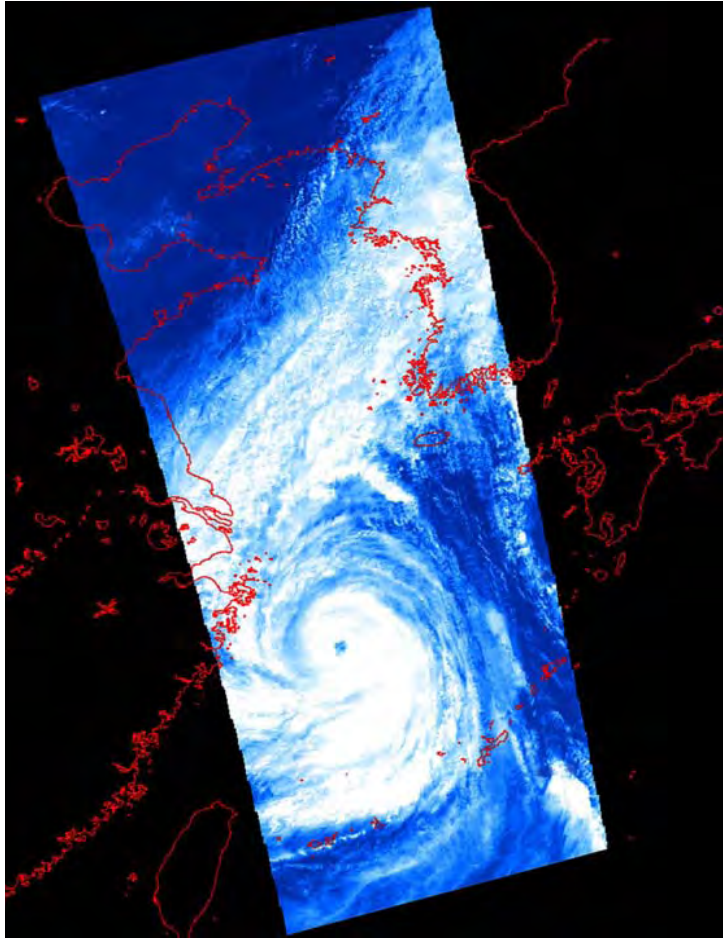
**March 31, 2001**



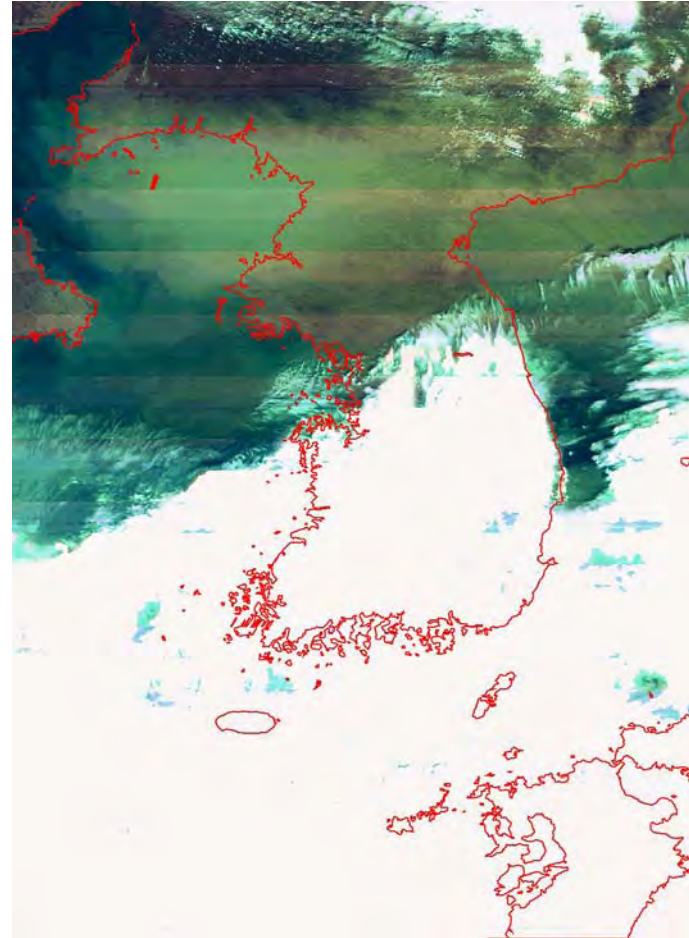
**August 23, 2001**

# Meteorological Applications

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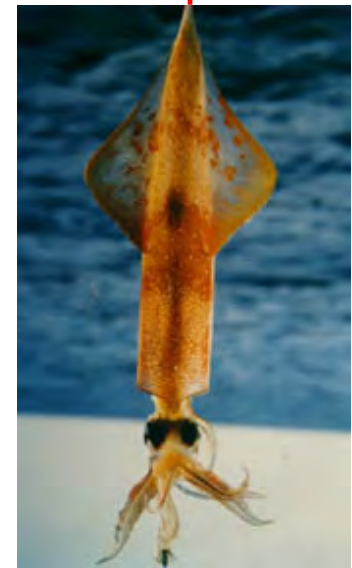
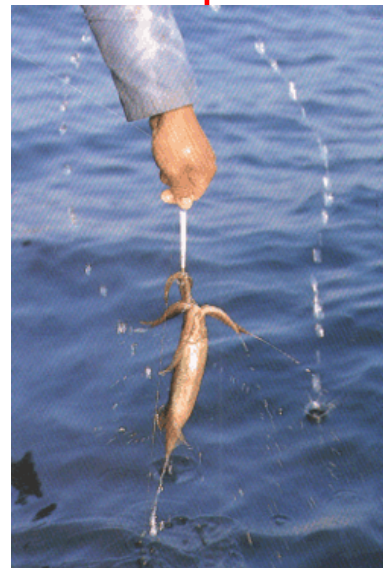
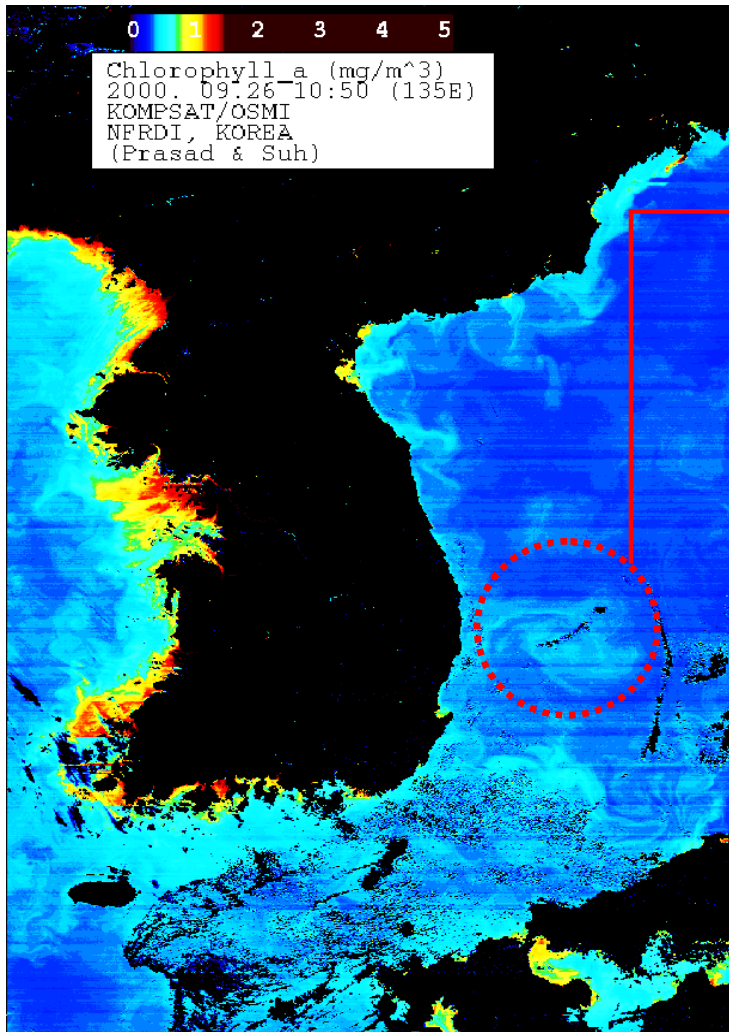


**Typhoon Saomai**  
Sept. 14, 2000

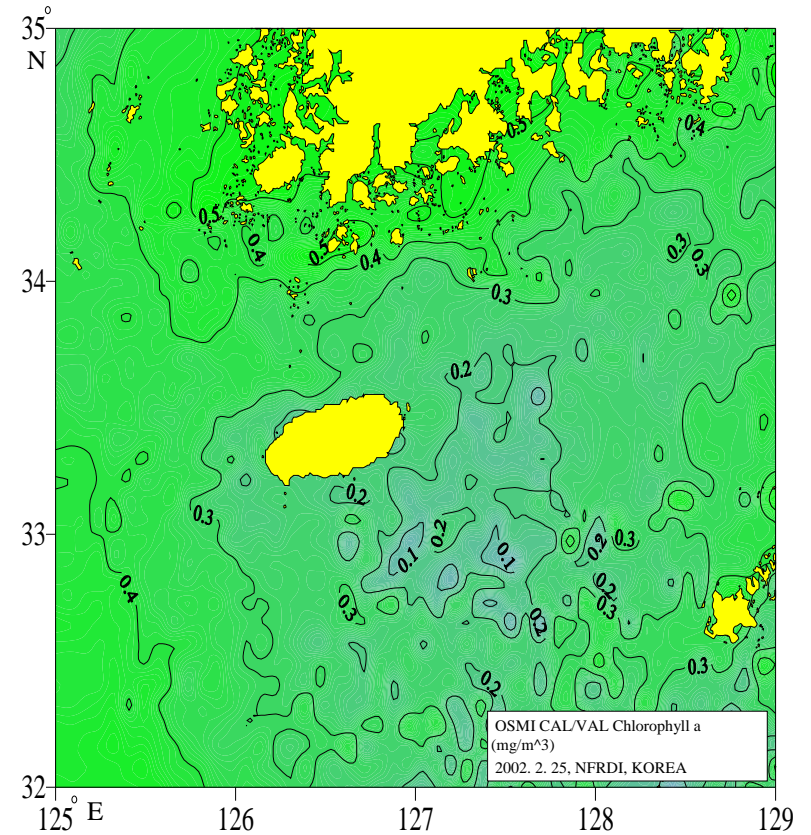
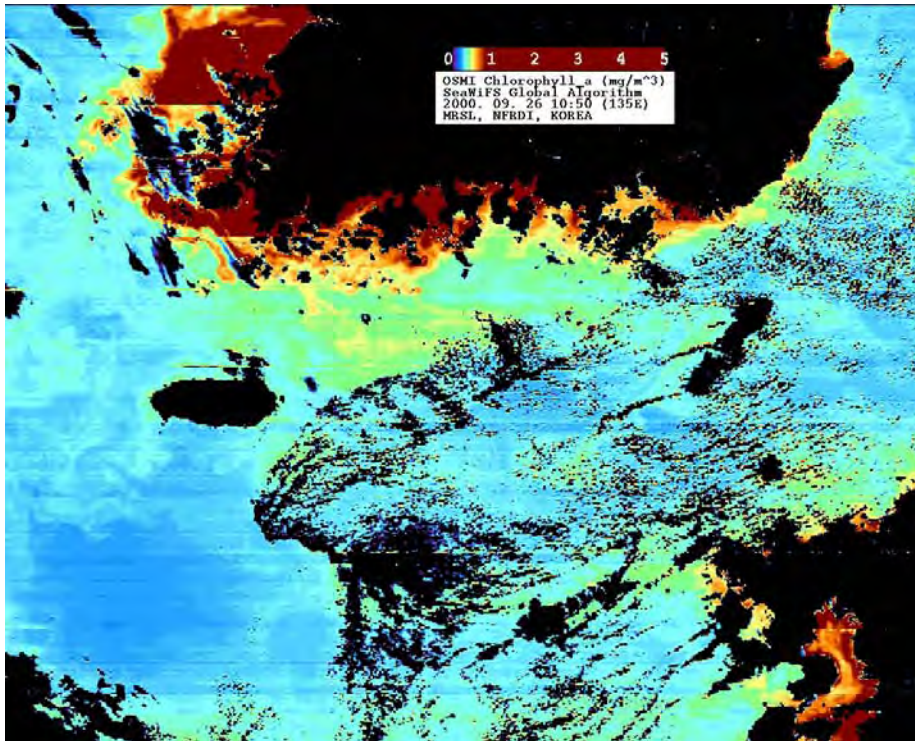


**Yellow Dust**  
March 22, 2002

# Marine Applications



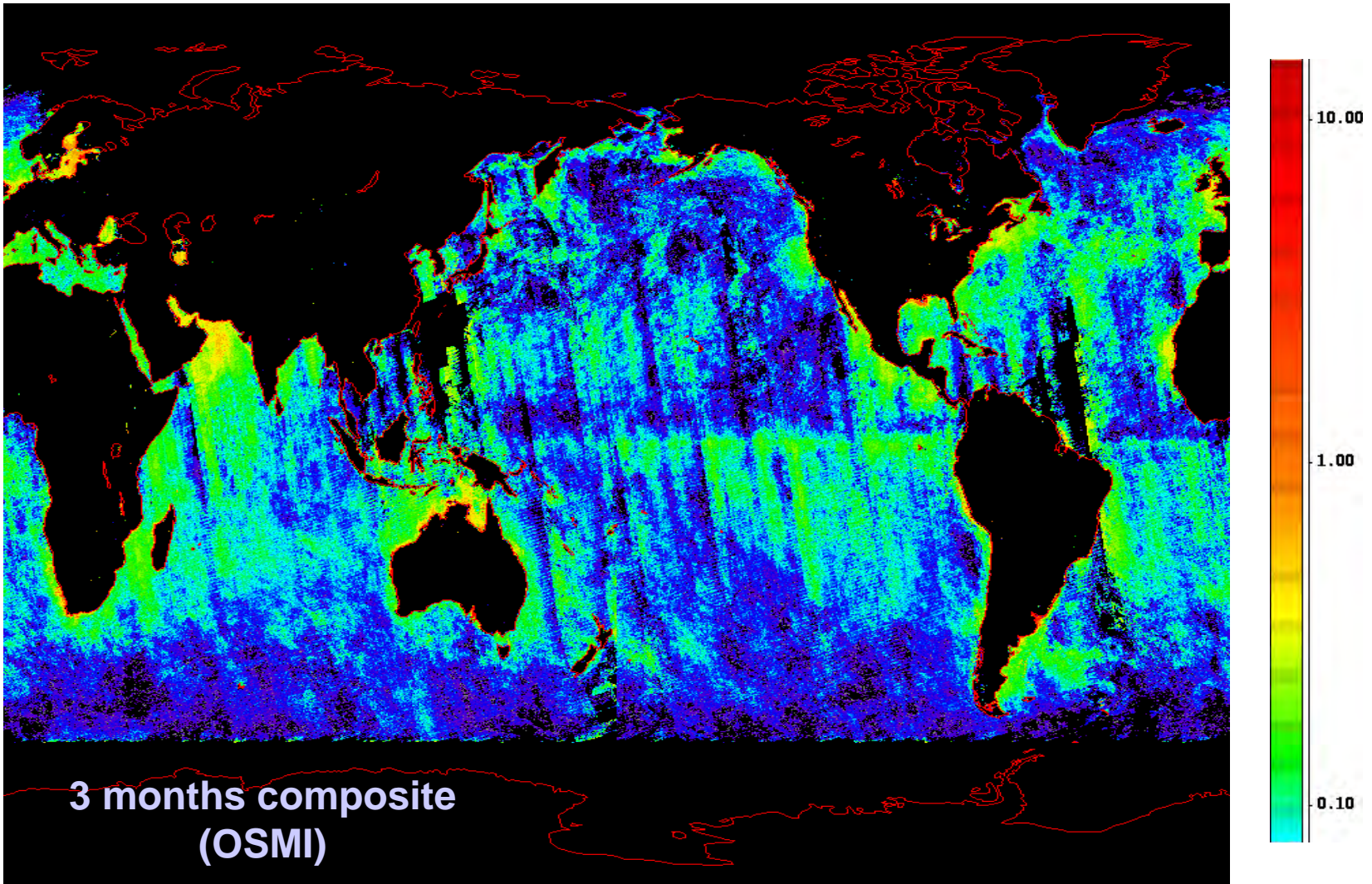
# Marine Applications



Quantification of basic diet of fishing grounds  
in the southern seas



# Global Distribution of Chlorophyll-a



# Future Mission

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## High Resolution Visible and IR Sensors (HiRVIS) on Geostationary Satellite

# Mission Concepts

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- Meteorological satellite
- High Resolution Visible & IR sensor (tentatively, HiRVIS) for ocean observation
- Communication satellite

# HiRVIS' Mission Goals

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- Detecting, monitoring, predicting short-term marine natural hazards
  - toxic algal blooms, turbid water, low saline water, cold water, warm waste water/atomic power plant, dumping site monitoring, oil spill.
- Marine ecosystem monitoring
- Coastal resource management
- Providing marine fishery information for fisherman

# Requirements

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- Orbit : Geostationary satellite (launch in 2008)
- Spatial resolution : 250m x 250m
- Field of view : > 500km
  - Frame transfer CCD array : 2000 x 2000
- Spectral coverage : 0.4  $\mu\text{m}$  - 12  $\mu\text{m}$
- Number of spectral bands : 11 (Visible-NIR; 8, IR; 3)
- Data download : < 15min
- Digitization : 12 bit

# Coverage

(global mode, 12,000km x 12,000km)

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