Sea Ice Advisory to
34th Indian Scientific Expedition to Antarctica

Highlights

1. The reduction of fast sea ice in India Bay has been well picked up by Indian Satellite
data like RISAT-1 SAR and Resourcesat-2 AWiFS & LISS-IV.

2. The changing sea ice pattern is clearly monitored using MODIS mosaic data.

3. The analysis of Sea Ice Concentration Data indicates that there is increase in area of
high concentration sea ice in India Bay (although sea ice may be thin) for almost last
one week.

4. The Surface Temperature forecast for three Antarctic stations near India Bay indicate
that there are chances of overall decrease in temperature over next 4-5 days.

Oceanic Science Division (OSD),

Atmospheric & Oceanic Sciences Group (AOSG), EPSA,

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Mar 10, 2015
Ice Feature Identification using Indian Satellites Data

(RISAT-1 SAR: MRS & FRS-1, Resourcesat-2 AWiFS and LISS-IV)
Ship is visible due to Corner Reflection Effect. Coordinates Confirmed by 34th ISEA Team.

Enlarged Image under Rectangular Box shown in previous slide.

OSD / AOSG / EPSA / SAC, Ahmedabad, India
RISAT-1 SAR FRS-1 Image over Parts of India Bay March 05 2015

- Ice Rise
- Sea Ice Floe
- Water
- Thin Fast Ice
- Snow-free Ice Shelf
- Indian Barrier
- Ice Shelf Parts
- ICE SHELF

OSD / AOSG / EPSA / SAC, Ahmedabad, India
Ice Feature Monitoring using MODIS Mosaic Data
Antarctic Ice Features from MODIS Mosaic (Jan 16, 2015)

- Indian Barrier
- Indian New Barrier
- Russian Barrier

Sea ice floes

Ice Rise

FAST ICE

ICE SHELF

Cloud

OSD / AOSG / EPSA / SAC, Ahmedabad, India
Antarctic Ice Features from MODIS Mosaic (Feb 18, 2015)

- △ Indian Barrier
- ○ Indian New Barrier
- □ Russian Barrier

SEA ICE

ICE SHELF

FAST ICE

ICE RISE

OCEAN

OSD / AOSG / EPSA / SAC, Ahmedabad, India
Antarctic Ice Features from MODIS Mosaic (Feb 19, 2015)

- △ Indian Barrier
- ○ Indian New Barrier
- □ Russian Barrier

Sea ice
OCEAN
ICE SHELF
FAST ICE
Ice Rise

OSD / AOSG / EPSA / SAC, Ahmedabad, India
Antarctic Ice Features from MODIS Mosaic (Feb 27, 2015)

- Indian Barrier
- Indian New Barrier
- Russian Barrier
Antarctic Ice Features from MODIS Mosaic (Mar 07, 2015)

- Indian Barrier
- Indian New Barrier
- Russian Barrier

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Antarctic Ice Features from MODIS Mosaic (Mar 09, 2015)

- Indian Barrier
- Indian New Barrier
- Russian Barrier

OSD / AOSG / EPSA / SAC, Ahmedabad, India
Sea Ice Concentration Monitoring using AMSR2 ASI SIC Data
Sea Ice Concentration (SIC) in India Bay (Antarctica): Feb 20, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Feb 21, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

SIC (%): > 90  90 – 80  80 – 60  60 – 15

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Feb 22, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

SIC (%):
- > 90
- 90 – 80
- 80 – 60
- 60 – 15

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Feb 23, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

SIC (%): > 90  90 – 80  80 – 60  60 – 15

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Feb 24, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Feb 25, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

A N T A R C T I C A

SIC (%): > 90  90 – 80  80 – 60  60 – 15

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Feb 26, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

SIC (%): > 90 90 – 80 80 – 60 60 – 15

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Feb 27, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Feb 28, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

SIC (%): > 90, 90 – 80, 80 – 60, 60 – 15

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Mar 01, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

SIC (%): 
- > 90
- 90 – 80
- 80 – 60
- 60 – 15

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Mar 02, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al., 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Mar 03, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Mar 04, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

SIC (%): > 90 90 – 80 80 – 60 60 – 15

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Mar 05, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Mar 06, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

SIC (%): > 90 90 – 80 80 – 60 60 – 15

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Mar 07, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Sea Ice Concentration (SIC) in India Bay (Antarctica): Mar 08, 2015

Antarctic Barriers: 1. Indian Barrier, 2. Indian New Barrier, 3. Russian Barrier

OSD / AOSG / EPSA / SAC (ISRO), Ahmedabad, India.

Based on AMSR2 ASI 3.125 km SIC data v0.1 (Beitsch et al, 2013)
Surface Temperature Forecast (www.polarmet.osu.edu/nwp/?model=antarctic_wrf) at 3 Antarctic Stations (Novalazarevskaya, Neumayer, and Sanae) near India Bay indicate possibility of decrease in overall surface temperature over next 4-5 Days. The forecast temperatures for the 3 stations is shown.