

Korea Arctic Ocean-data System

Junhwa Chi, Hyun-Cheol Kim, Sung-Ho Kang

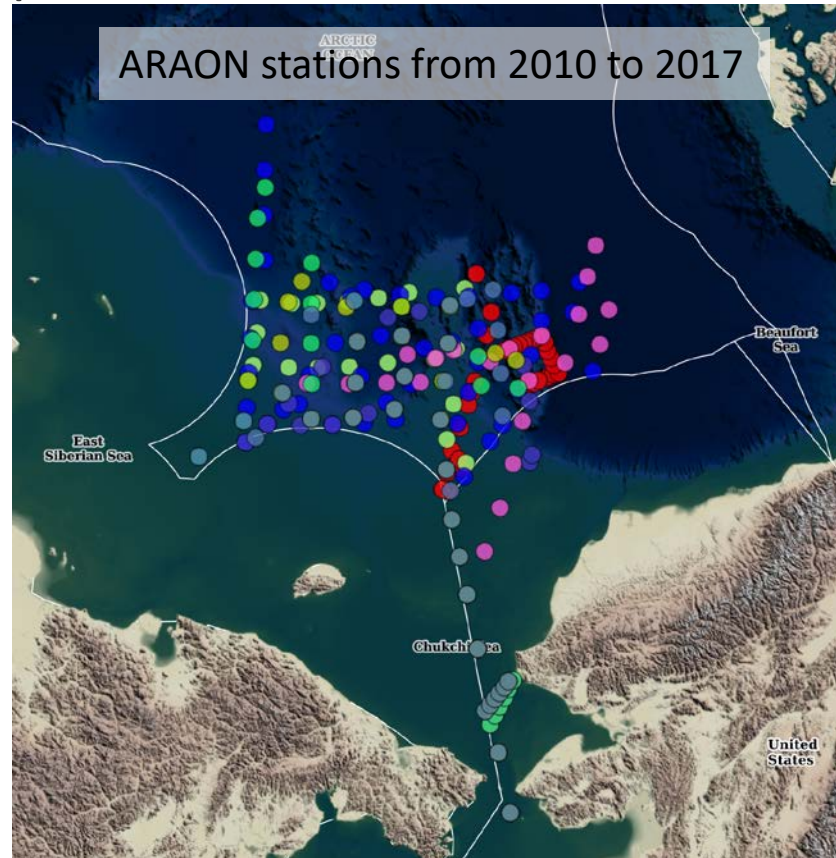
Korea Polar Research Institute

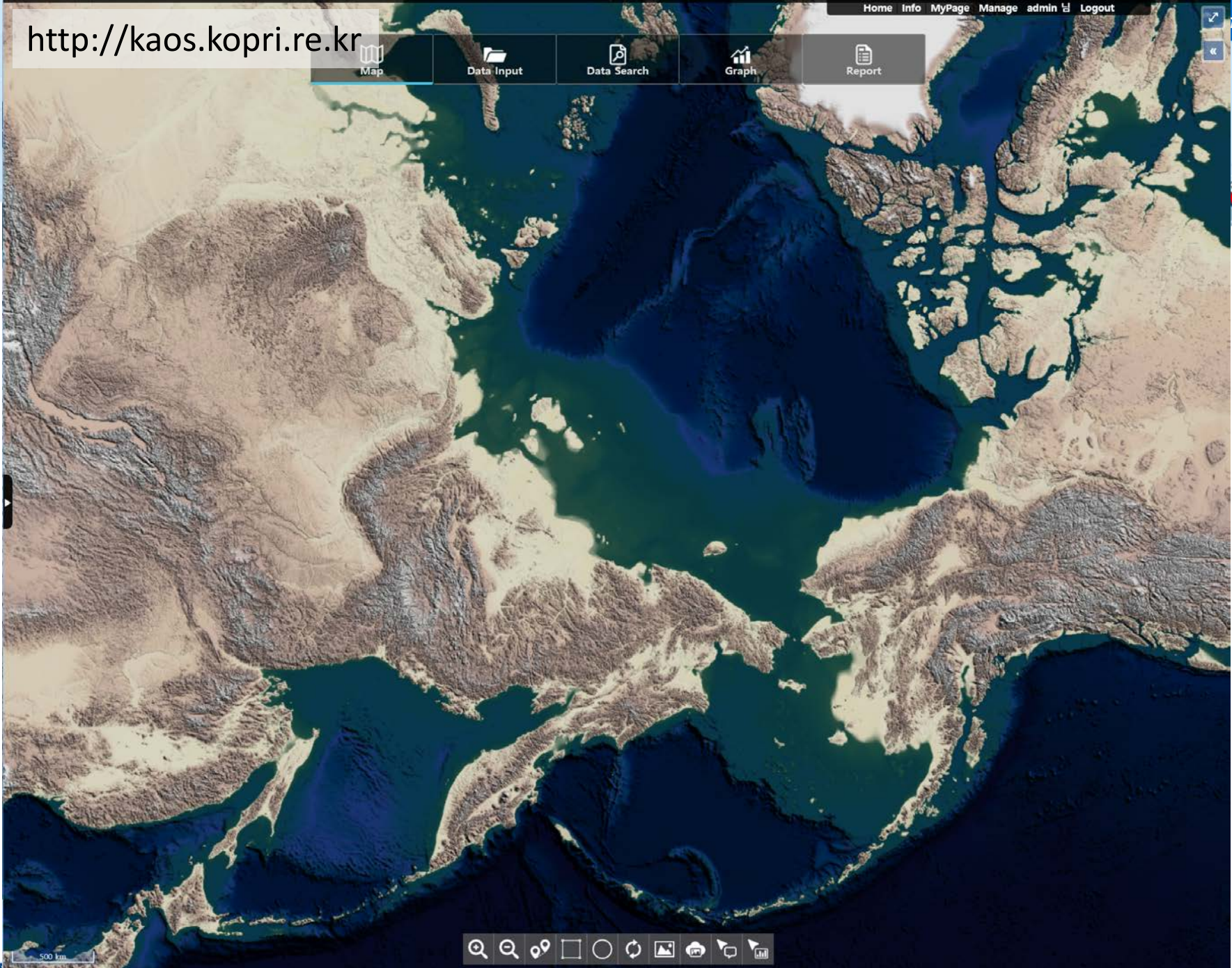
June 18, 2018

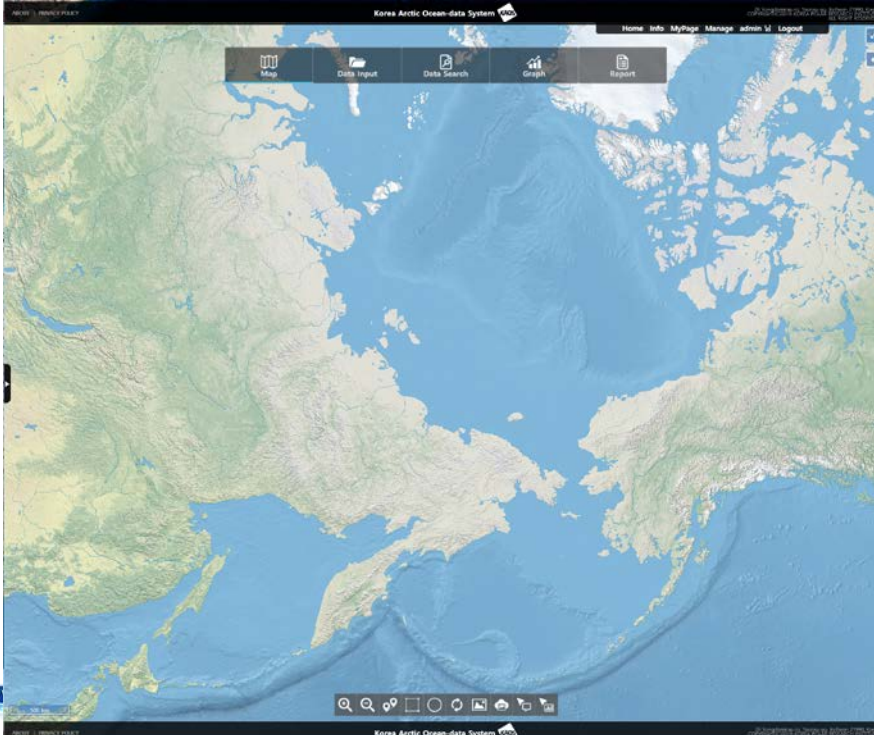
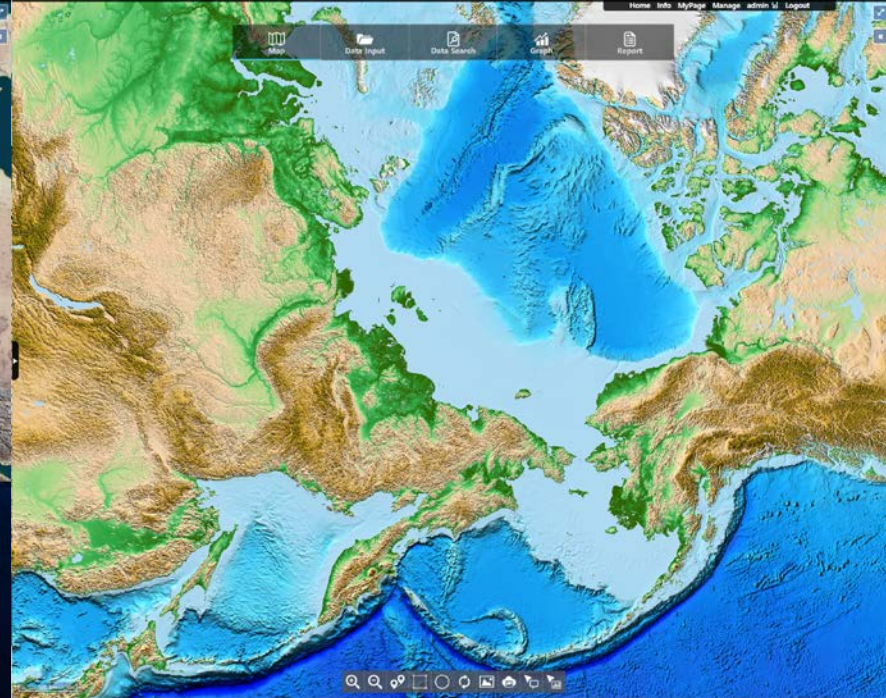


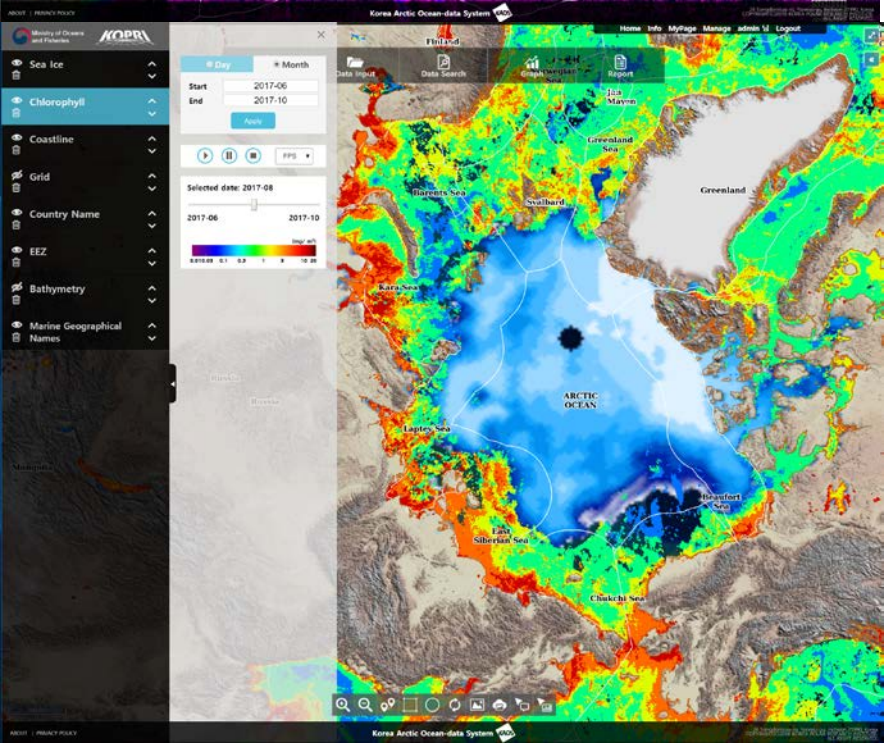
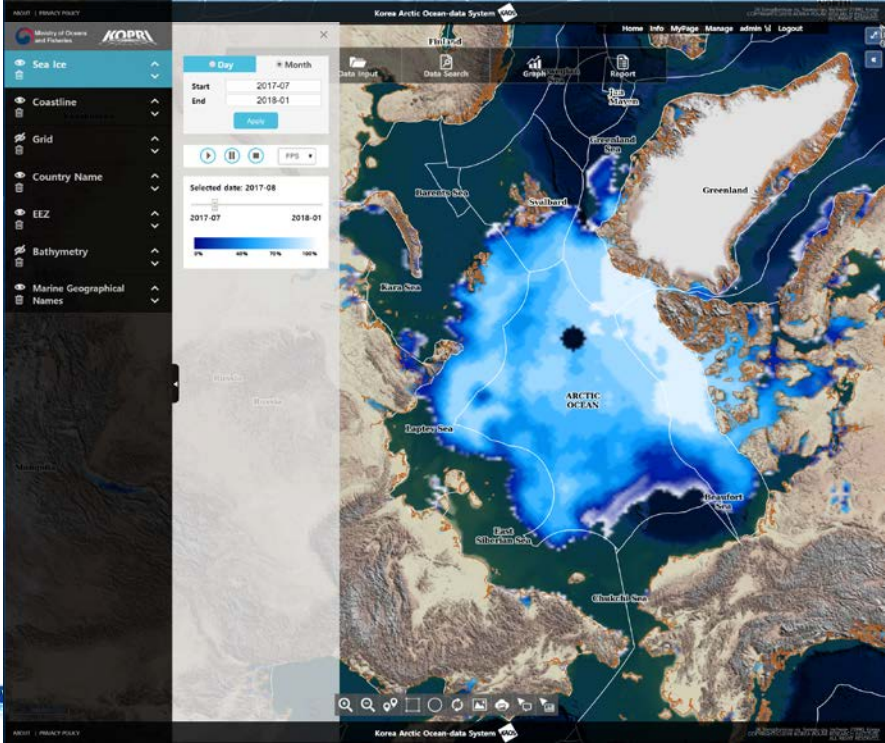
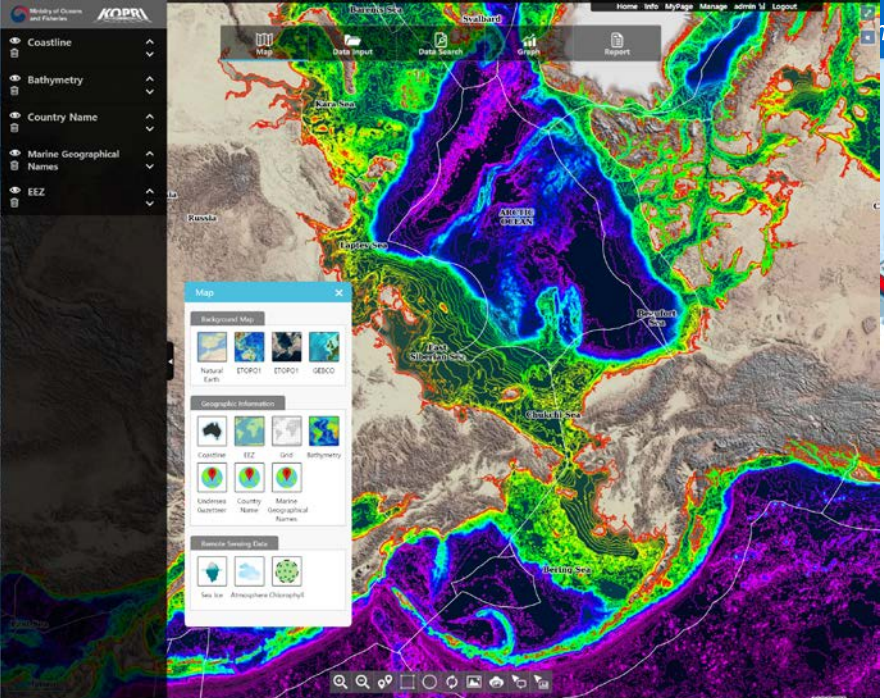
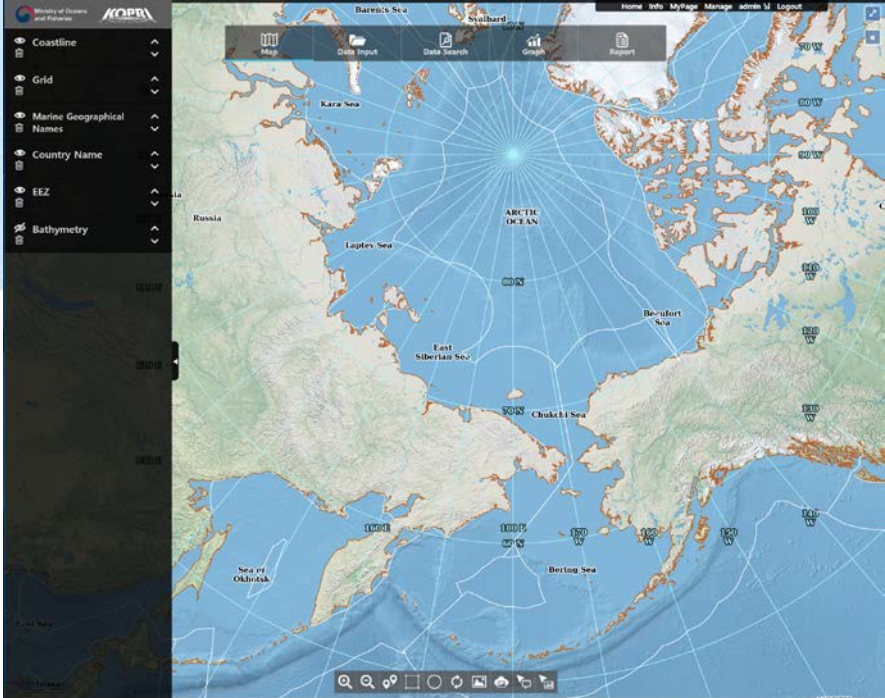
Why should we share Arctic ocean data?

- Perform independent research activities using IBRV ARAON
- Produce massive in-situ data in ocean physics, biology, chemistry, etc
- Cover only small part of the Arctic ocean











Data Input
✕

• Year: 2018

• Permissions: KOPRI

• Data type: Processing data

Selected parameters : Bacteria / Virus /

▲ Select Research Ca...

Biological oceanograp

Depth

Num of Bacteria

cells/ml

Num of Virus

cells/ml

| date | depth | Num of Bacteria (10-8 cells/L) | Num of Virus (10-9 cells/L) |
|-----------------|-------|--------------------------------|-----------------------------|
| -08-07 00:00:00 | 0 | 59 | 16 |
| -08-07 00:00:00 | 0 | 18 | 6 |
| -08-07 00:00:00 | 0 | 9 | 12 |
| -08-08 00:00:00 | 0 | 24 | 7 |
| -08-08 00:00:00 | 0 | 21 | 7 |
| -08-09 00:00:00 | 0 | 18 | 6 |
| -08-09 00:00:00 | 0 | 4 | 2 |
| -08-10 00:00:00 | 0 | 4 | 1 |
| -08-10 00:00:00 | 0 | 8 | 1 |
| -08-12 00:00:00 | 0 | 2 | 1 |
| -08-15 00:00:00 | 0 | 7 | 1 |
| -08-19 00:00:00 | 0 | 10 | 1 |
| -08-20 00:00:00 | 0 | 4 | 1 |
| -08-21 00:00:00 | 0 | 5 | 1 |
| -08-21 00:00:00 | 0 | 5 | 1 |
| -08-23 00:00:00 | 0 | 3 | 0 |
| -08-23 00:00:00 | 0 | 2 | 0 |
| -08-24 00:00:00 | 0 | 2 | 0 |

Open a File

06. Bacteria&Virus_2017... ✕

Template Download

Input

Data input templates



Develop standard data input templates by interviews and data characteristics



Template for single data value with depth information

| Rec. # | Cruise ID | Station ID | Lon | Lat | Date | Depth | Temperature | Density | Pressure | Salinity | Potential Temperature |
|--------|-----------|------------|-----|-----|------|-------|-------------|---------|----------|----------|-----------------------|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Rec. # | Cruise ID | Station ID | Lon | Lat | Date | Depth | # of Bacteria | # of Virus |
|--------|-----------|------------|-----|-----|------|-------|---------------|------------|
| | | | | | | | | |
| | | | | | | | | |

• Depth (default unit = meter)

- Orders do no matter
- Automatically match columns
- Unit is selectable

Data input templates



Develop standard data input templates by interviews and data characteristics



➤ Template for two data values with depth information

| Rec. # | Cruise ID | Station ID | Lon | Lat | Date | Depth | Plankton species | Population |
|--------|-----------|------------|-----|-----|------|-------|------------------|------------|
| | | | | | | | | |
| | | | | | | | | |

➤ Template for single data value without depth information

| Rec. # | Cruise ID | Station ID | Lon | Lat | Date | pCO2 |
|--------|-----------|------------|-----|-----|------|------|
| | | | | | | |
| | | | | | | |

➤ Template for multiple data values

| Rec. # | Cruise ID | Station ID | Lon | Lat | Date | Depth | Bulk Density | color spectrometry | water content | geochemical properties | palynomorphs |
|--------|-----------|------------|-----|-----|------|-------|--------------|--------------------|---------------|------------------------|--------------|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Data input templates



Develop standard data input templates by interviews and data characteristics



➤ Template for continuous data (e.g. atmosphere)

| Rec. # | Cruise ID | Lon | Lat | Date | Temp. | Humidity | Pressure | Wind direction | Wind speed | SW radiation | LW radiation |
|--------|-----------|-----|-----|------|-------|----------|----------|----------------|------------|--------------|--------------|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

➤ Template for buoy data

| Rec. # | ID | MOMSN | IridDate | IridLat | IridLng | IridCEP | GPSDateTime | GPSLat | GPSLng | BattV |
|--------|----|-------|----------|---------|---------|---------|-------------|--------|--------|-------|
| | | | | | | | | | | |
| | | | | | | | | | | |

| SerialNum | SendTime | DataRecNum | T0 | ... | T287 |
|-----------|----------|------------|----|-----|------|
| | | | | | |
| | | | | | |

Map Data Input Data Search Graph Report

Data Input
✕

• Year: 2018

• Permissions: KOPRI

• Data type: Processing data

Selected parameters : Bacteria / Virus /

▲ Select Research Ca...

Biological oceanograp

Depth

Num of Bacteria

cells/ml

Num of Virus

cells/ml

| date | depth | Num of Bacteria (10-8 cells/L) | Num of Virus (10-9 cells/L) |
|-----------------|-------|--------------------------------|-----------------------------|
| -08-07 00:00:00 | 0 | 59 | 16 |
| -08-07 00:00:00 | 0 | 18 | 6 |
| -08-07 00:00:00 | 0 | 9 | 12 |
| -08-08 00:00:00 | 0 | 24 | 7 |
| -08-08 00:00:00 | 0 | 21 | 7 |
| -08-09 00:00:00 | 0 | 18 | 6 |
| -08-09 00:00:00 | 0 | 4 | 2 |
| -08-10 00:00:00 | 0 | 4 | 1 |
| -08-10 00:00:00 | 0 | 8 | 1 |
| -08-12 00:00:00 | 0 | 2 | 1 |
| -08-15 00:00:00 | 0 | 7 | 1 |
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| -08-20 00:00:00 | 0 | 4 | 1 |
| -08-21 00:00:00 | 0 | 5 | 1 |
| -08-21 00:00:00 | 0 | 5 | 1 |
| -08-23 00:00:00 | 0 | 3 | 0 |
| -08-23 00:00:00 | 0 | 2 | 0 |
| -08-24 00:00:00 | 0 | 2 | 0 |

Open a File

06. Bacteria&Virus_2017... ✕

Template Download

Input



Map Data Input Data Search Graph Report

Data Search

Categorical Add Favorites

| Research Category | Parameter | Year | Cruise Number |
|-------------------------|-----------------------|------|---------------|
| Physical oceanography | Density | 2010 | ARA08B |
| | Potential temperature | 2011 | TSTAR01B |
| Biological oceanography | Pressure | 2012 | |
| Chemical oceanography | Salinity | 2013 | |
| Meteorology | Temperature | 2014 | |
| | | 2015 | |
| | | 2016 | |
| | | 2017 | |
| | | 2018 | |

Add Layer Download



Map navigation icons: search, zoom in, zoom out, location, pan, refresh, print, share, full screen

- Sea Ice
- 2017, ARA088
- Temperature

Day Month

Start: 2017-08-01
End: 2017-08-31

Apply

Play Pause Stop FPS

Selected date: 2017-08-19

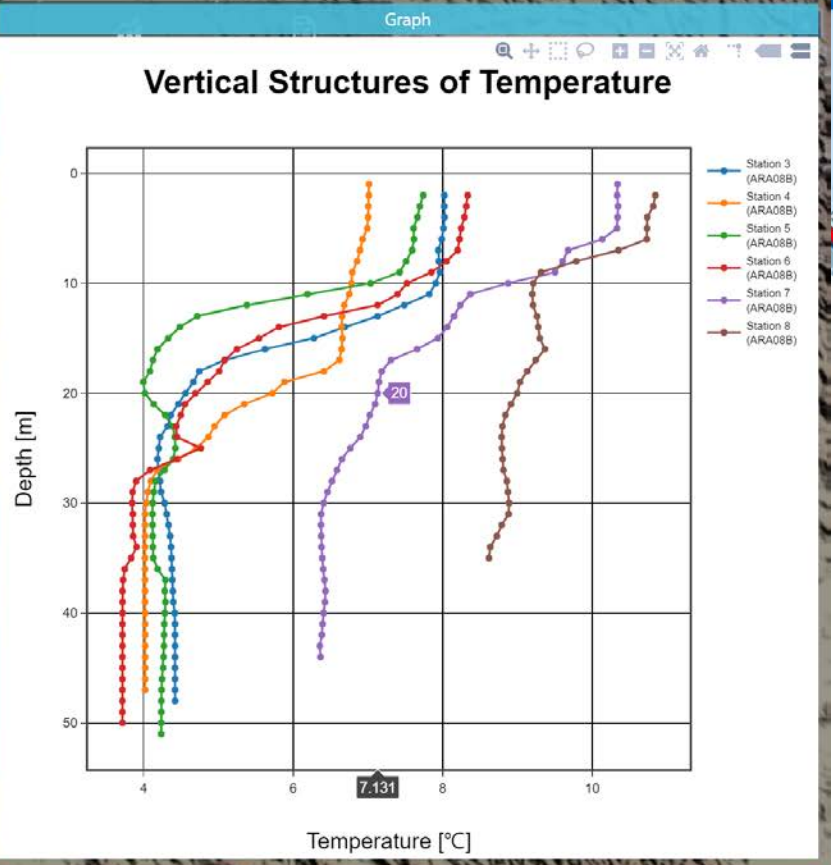
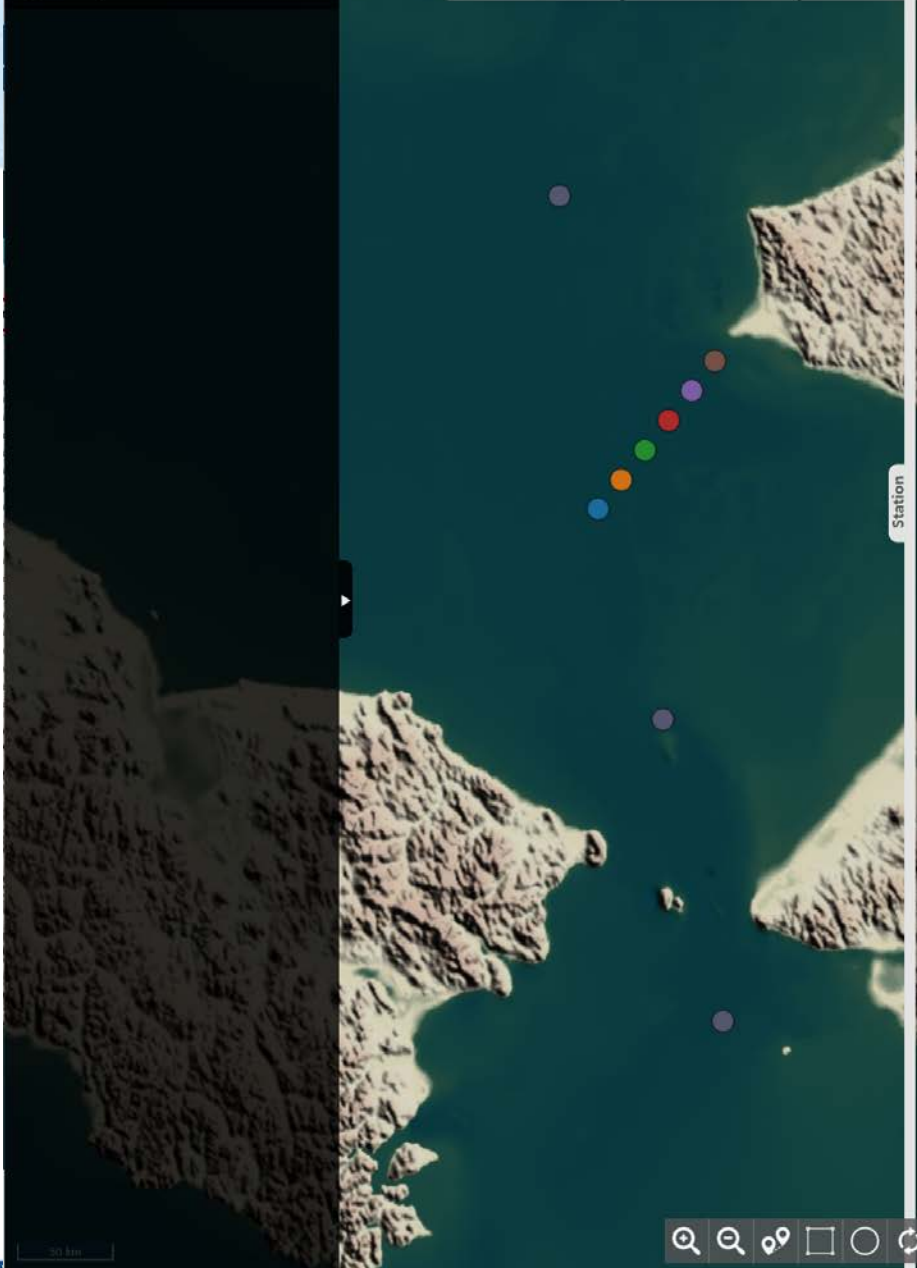
2017-08-01 2017-08-31

0% 40% 70% 100%

- Data Input
- Data Search
- Graph
- Report



Section Scatter Station



Axis X axis: Temperature

Parameter & Station
Parameter: Temperature (ARA08B) Station: 8

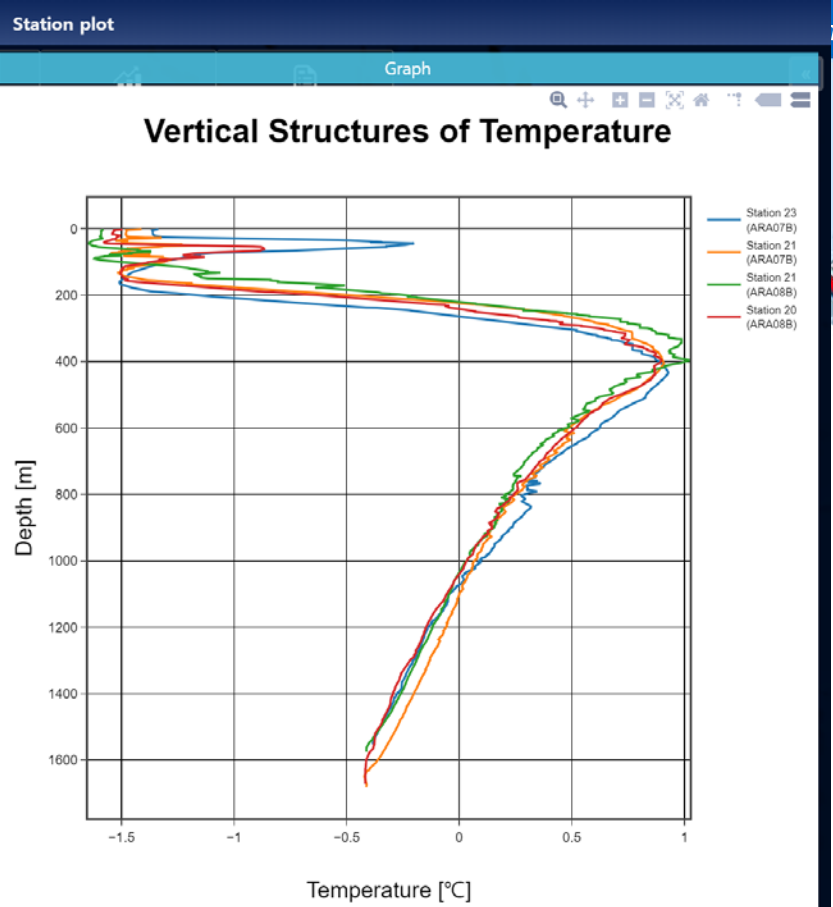
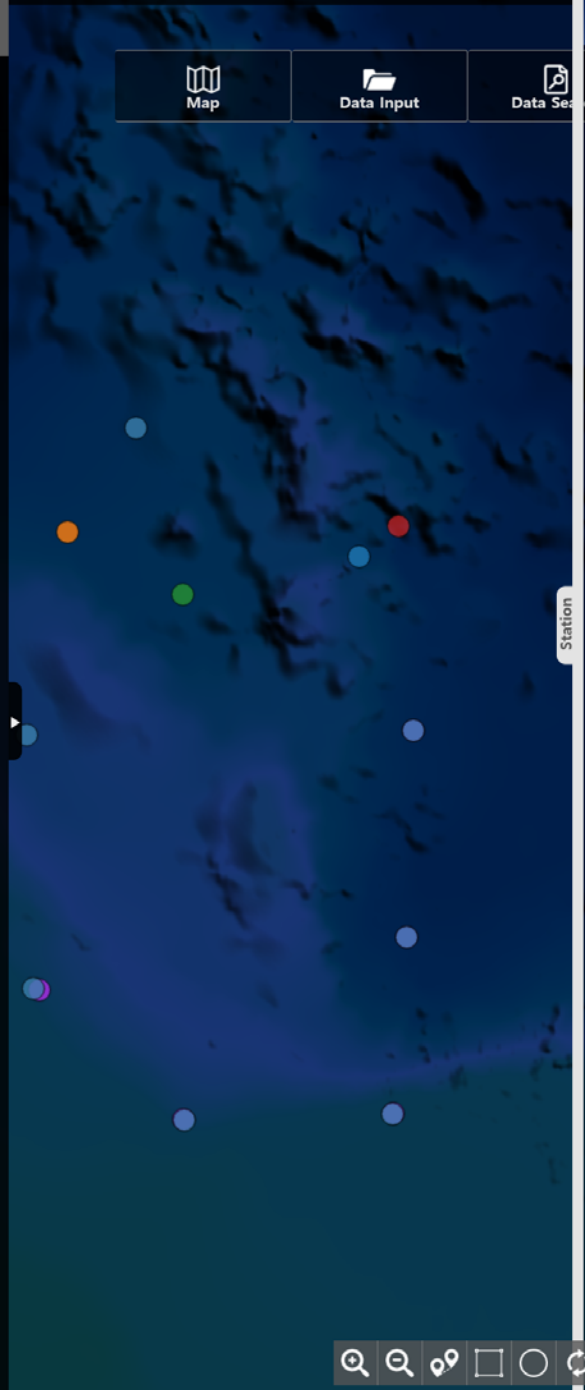
| No | Color | Parameter | Station | Remove |
|----|-------|----------------------|---------|--------|
| 1 | ■ | Temperature (ARA08B) | 3 | Remove |
| 2 | ■ | Temperature (ARA08B) | 4 | Remove |
| 3 | ■ | Temperature (ARA08B) | 5 | Remove |
| 4 | ■ | Temperature (ARA08B) | 6 | Remove |
| 5 | ■ | Temperature (ARA08B) | 7 | Remove |
| 6 | ■ | Temperature (ARA08B) | 8 | Remove |

Options
Y min: -2.20 Title
Markers
Y max: 54.20 Legend

Reset Save to Cloud Save to Local



- 2017, ARA08B
 Temperature
- 2016, ARA07B
 Temperature

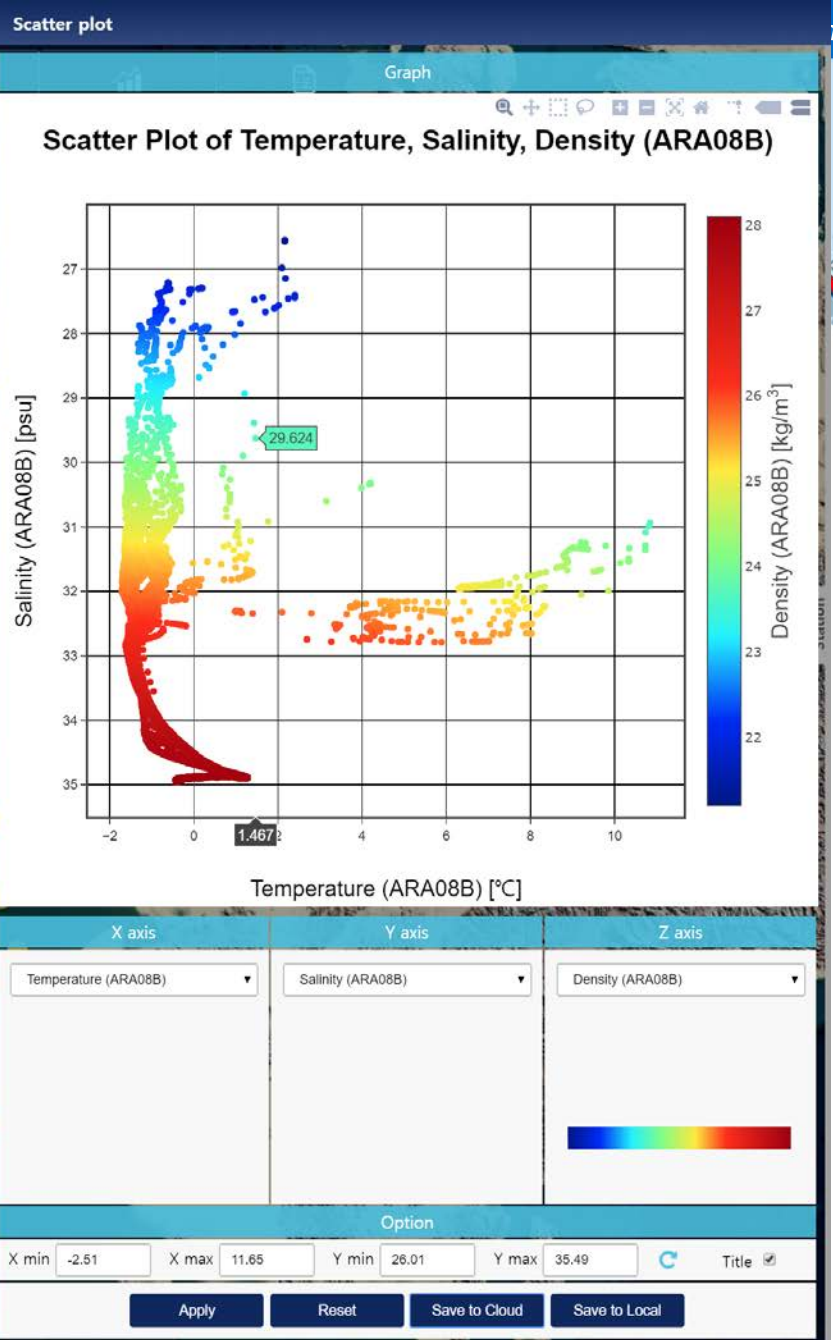
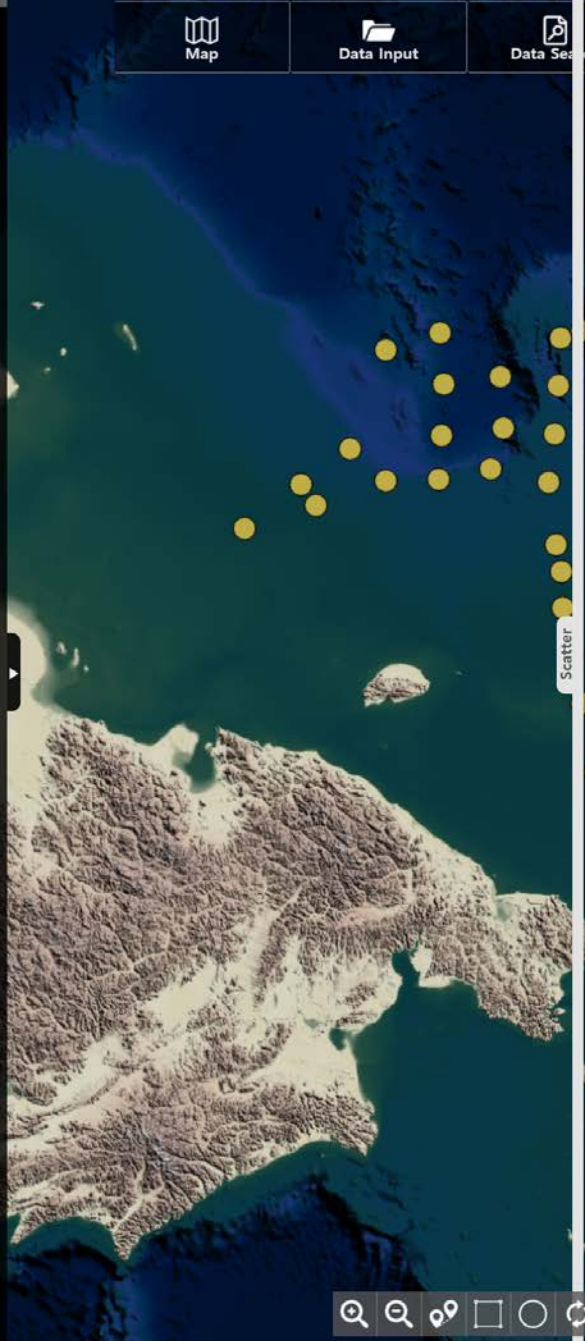


| Axis | | Parameter & Station | |
|---------|-------------|---------------------|-------------------------------------|
| X axis | Temperature | Parameter | Temperature (ARA08B) |
| | | Station | 20 |
| Options | | | |
| Y min | -92.33 | Title | <input checked="" type="checkbox"/> |
| Y max | 1774.3 | Markers | <input type="checkbox"/> |
| | | Legend | <input checked="" type="checkbox"/> |

| No | Color | Parameter | Station | Remove |
|----|-------|----------------------|---------|------------------------|
| 1 | ■ | Temperature (ARA07B) | 23 | Remove |
| 2 | ■ | Temperature (ARA07B) | 21 | Remove |
| 3 | ■ | Temperature (ARA08B) | 21 | Remove |
| 4 | ■ | Temperature (ARA08B) | 20 | Remove |

[Reset](#)
[Save to Cloud](#)
[Save to Local](#)

- 2017, ARA08B Temperature
- 2017, ARA08B Salinity
- 2017, ARA08B Density

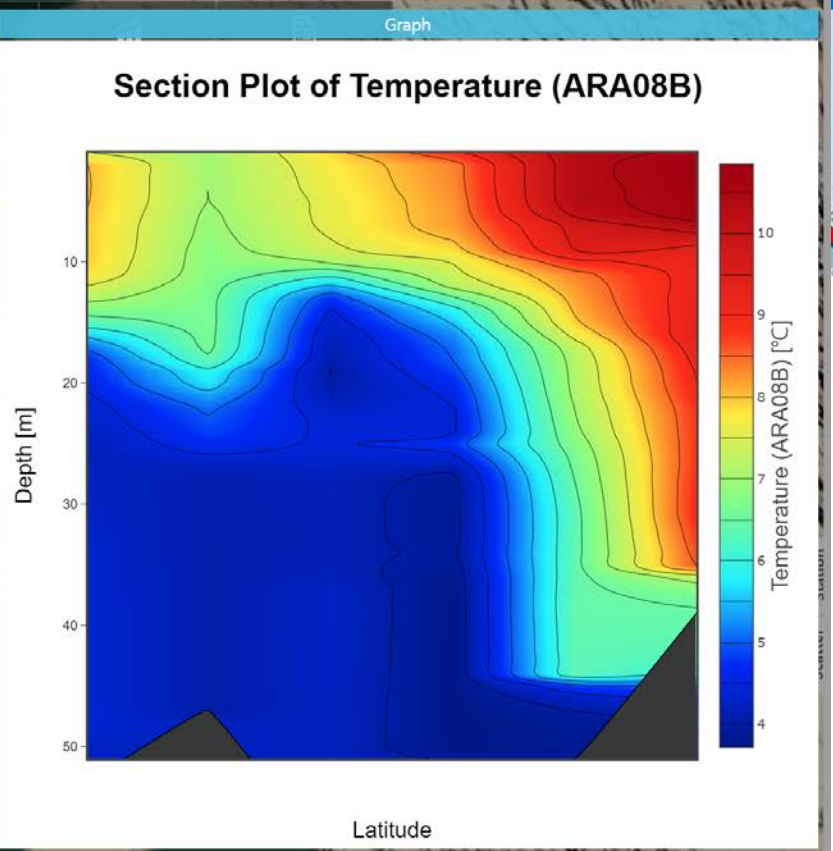


- 2017, ARA08B Temperature
- 2017, ARA08B Salinity
- 2017, ARA08B Density

Map | Data Input | Data Search



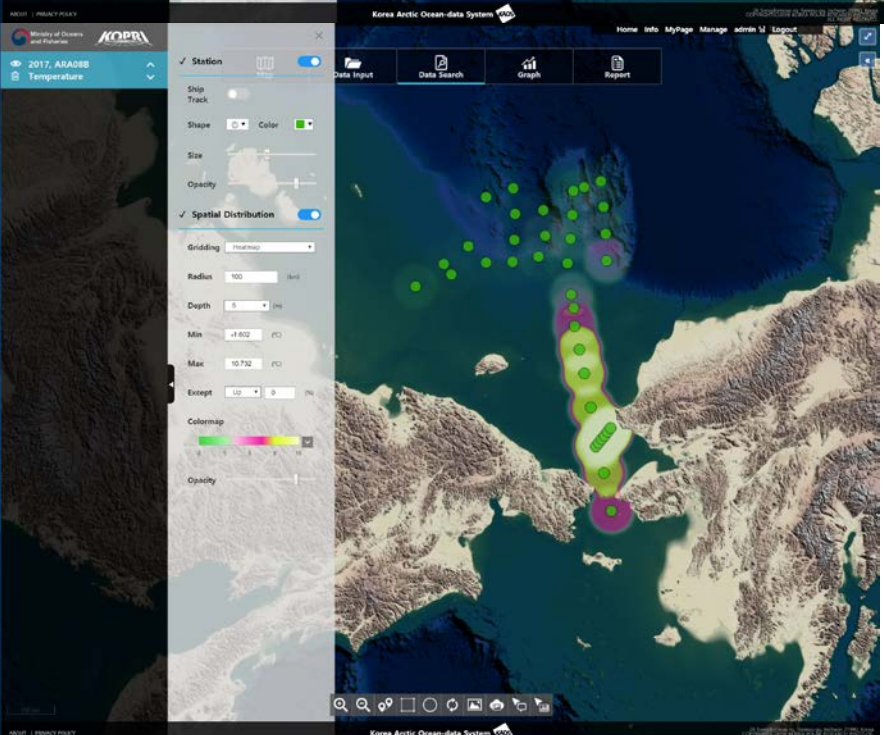
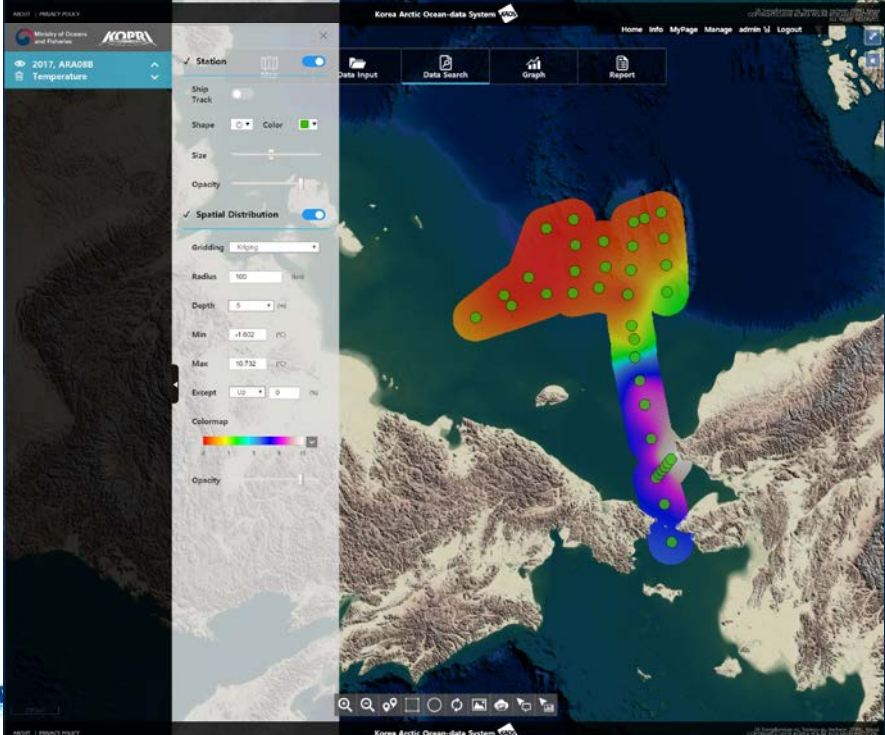
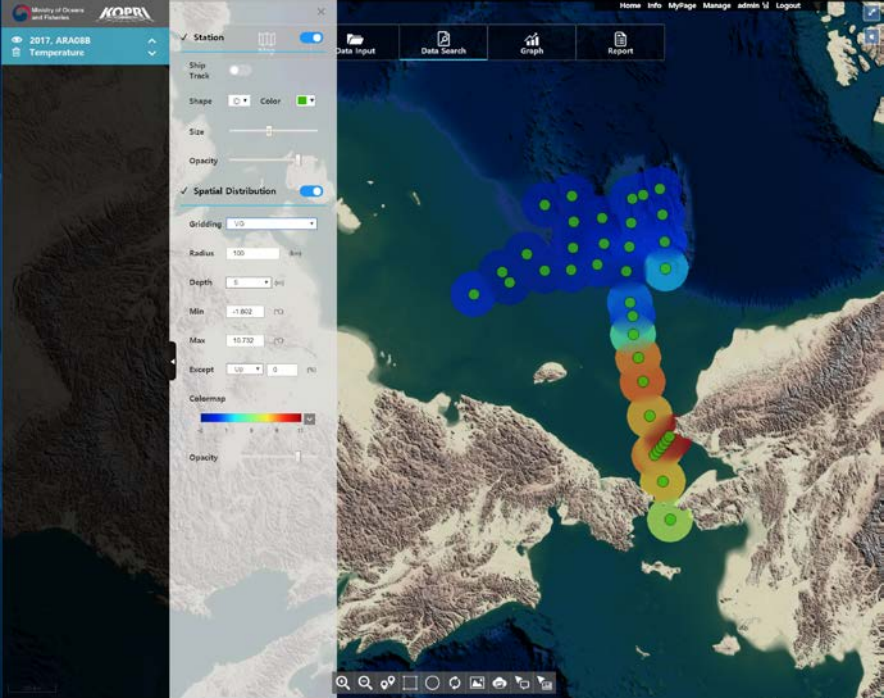
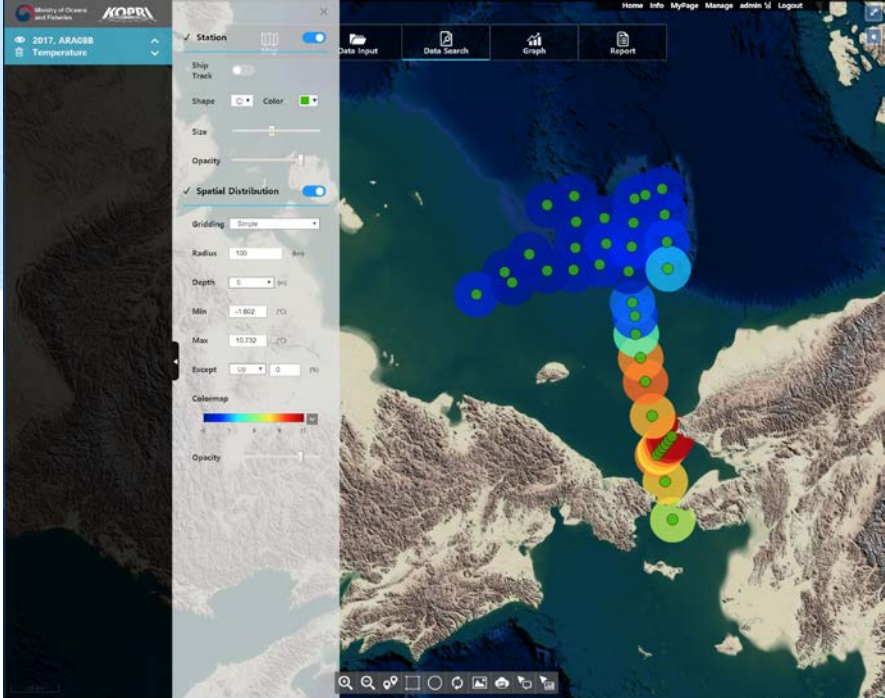
Section plot



| Axis | Station | Option |
|------------------------------|---------|--|
| X axis: Latitude | station | Gridding Method: Weighted griddi |
| Z axis: Temperature (ARA08B) | 1 | Bathymetry <input checked="" type="checkbox"/> Title <input checked="" type="checkbox"/> |
| | 2 | Y min: 1.00 Y max: 51.0 |
| | 3 | X scale: 1 Y scale: 1 |
| | 4 | |
| | 5 | |
| | 6 | |
| | 7 | |
| | 8 | |
| | 9 | |


Apply | Reset | Save to Cloud | Save to Local






✓ Station 

Ship Track

Shape  Color 

Size 

Opacity 

✓ Spatial Distribution


✓ Graph

Chart Type 


Direction Center 

Relocate

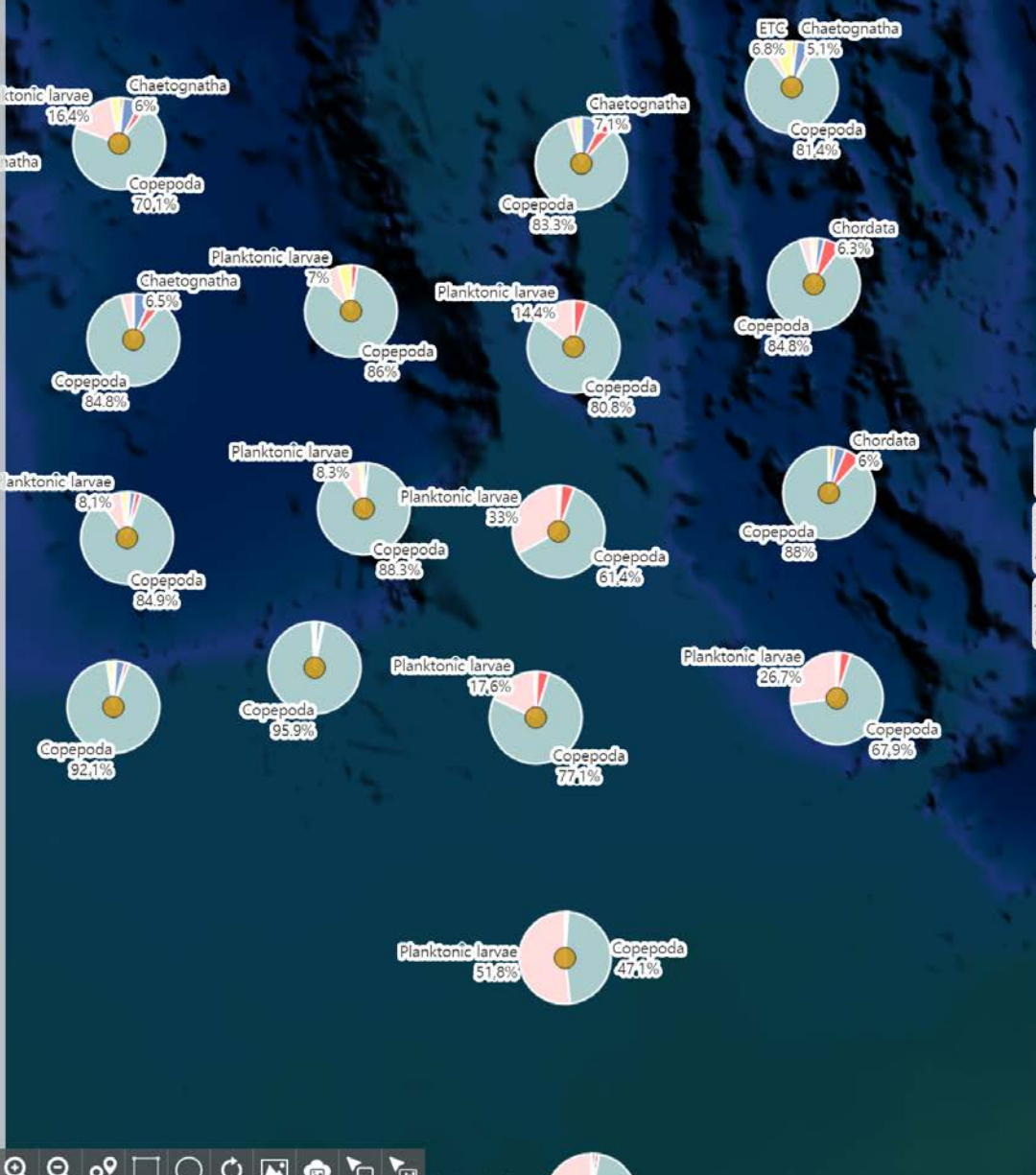
Opacity 

Size 

Names 

Data Input  Data Search  Graph  Report 





Section Scatter Station



Map Data Input Data Search Graph Report

Report

Please select the template of maps

Spatial distribution of Bacteria at 0m in the Arctic (2012)

Background map layer: GIBCO, The line of longitude and latitude, Grid

Description

Map

Description

Graph

Spatial distribution of Bacteria at 0m in the Arctic (2012)

Background map layer: GIBCO, The line of longitude and latitude, Grid

Description

Description

Spatial distribution of Bacteria at 0m in the Arctic (2012)

Background map layer: GIBCO, The line of longitude and latitude, Grid

Description

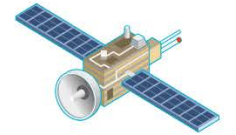
Description

Next



Section Scatter Station

Thank you!



<http://kaos.kopri.re.kr>

