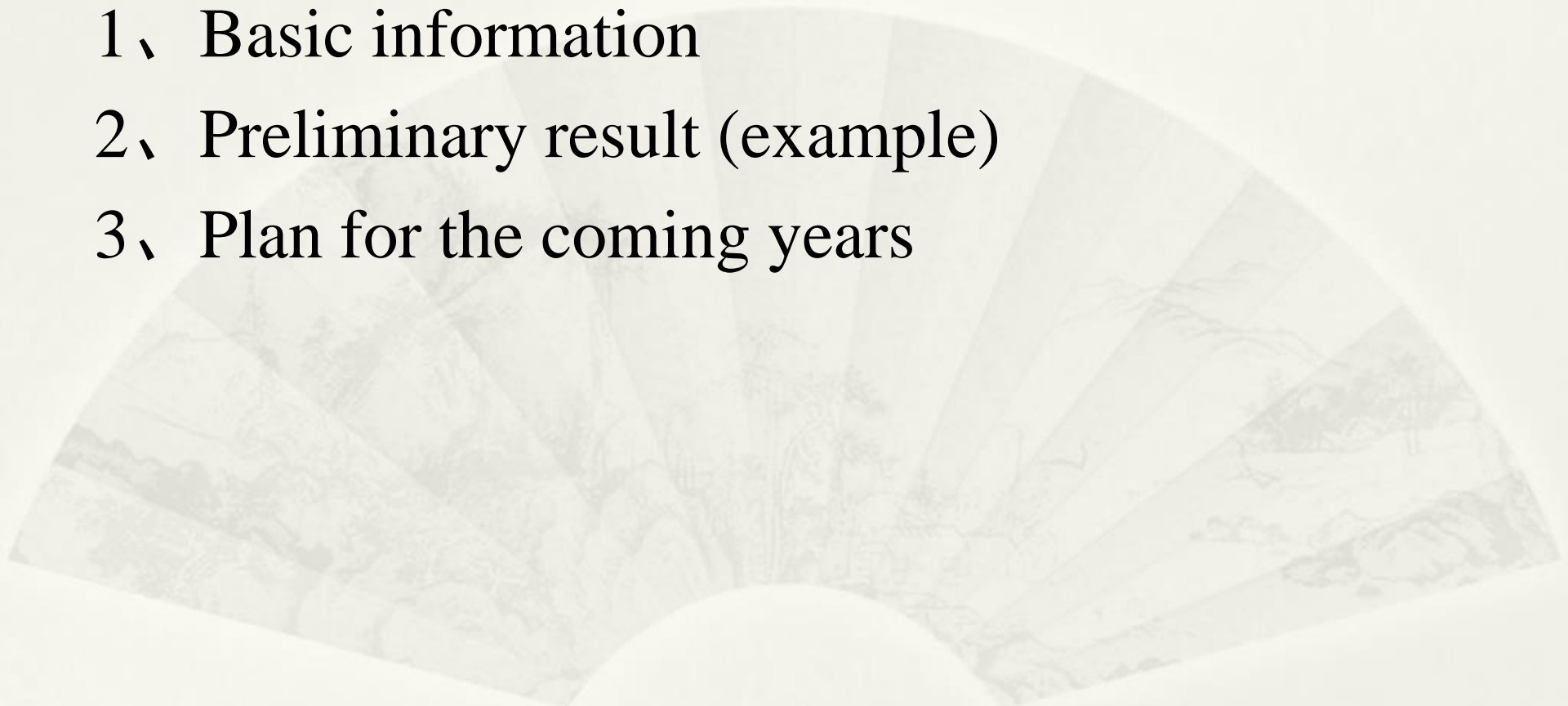


2017 Chinese Arctic Cruise


Jianfeng HE

Polar Research Institute of China

Outline

- 1、 Basic information
 - 2、 Preliminary result (example)
 - 3、 Plan for the coming years
- 

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- A decorative fan-shaped background with a traditional Chinese ink wash landscape painting. The painting depicts a mountainous landscape with trees, a river, and a small pavilion. The fan is positioned in the lower half of the slide, partially overlapping the text.

(1) Investigation contents

- Arctic Passage environment
- Sea ice and marine acidification
- Marine biodiversity and its response to environmental variation

(2) Investigation phases

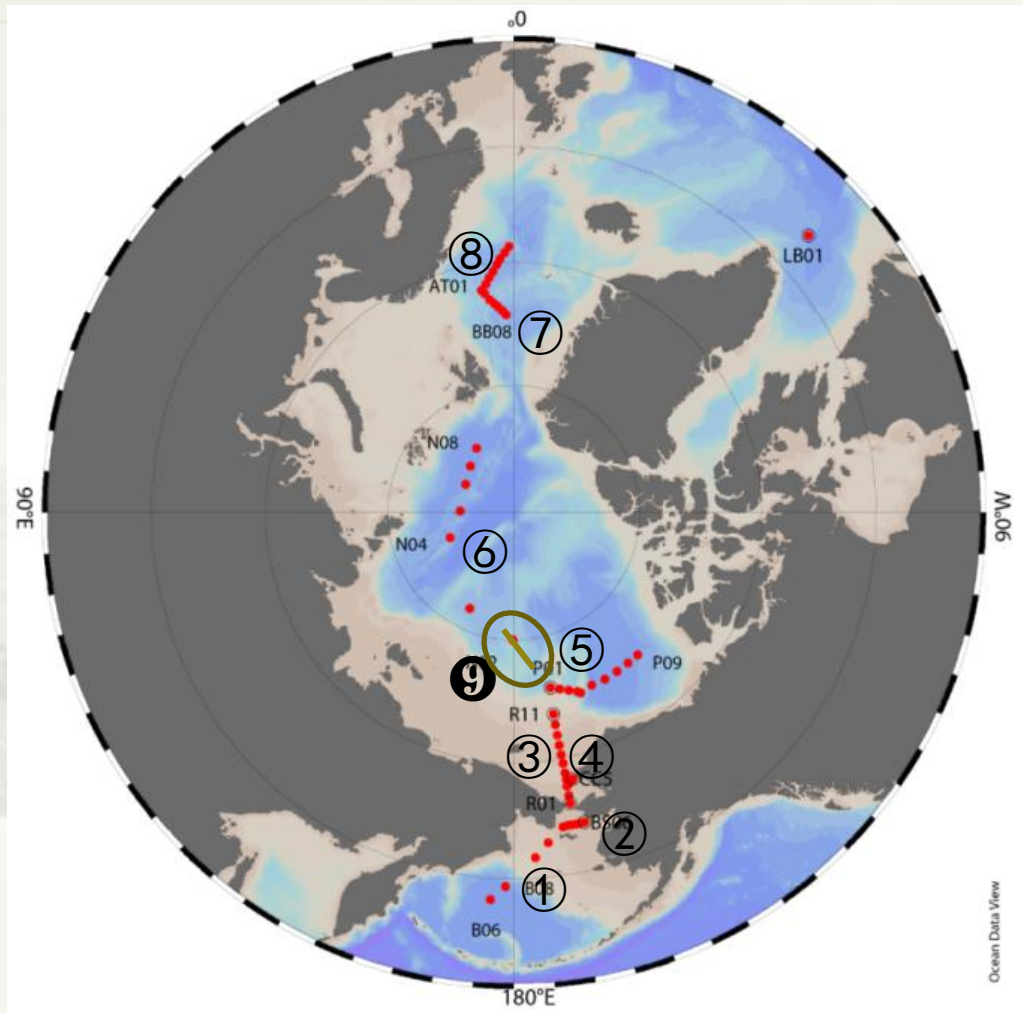


7 phases :

- 7.28~7.29 Bering Sea
- 8.02~8.16 Central Passage
- 8.21~8.23 Nordic Sea
- 8.30~9.06 Northwest Passage
- 9.11~9.19 Chukchi Plateau
- 9.20~9.22 Chukchi Sea
- 9.23~9.25 Bering Sea

**July 20th-Oct. 10th 83days and total 20590
nautical miles**

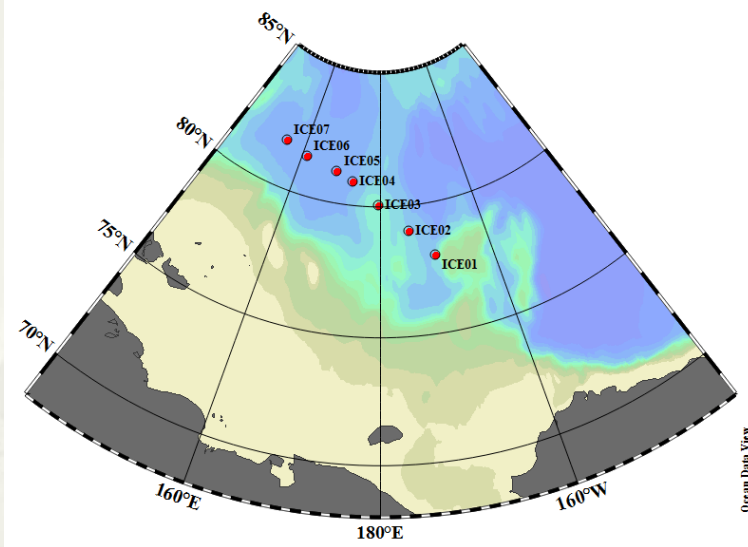
(4) Investigation transects and stations



- 8 transects;
- 58 CTD stations;
- 7 ice camps.

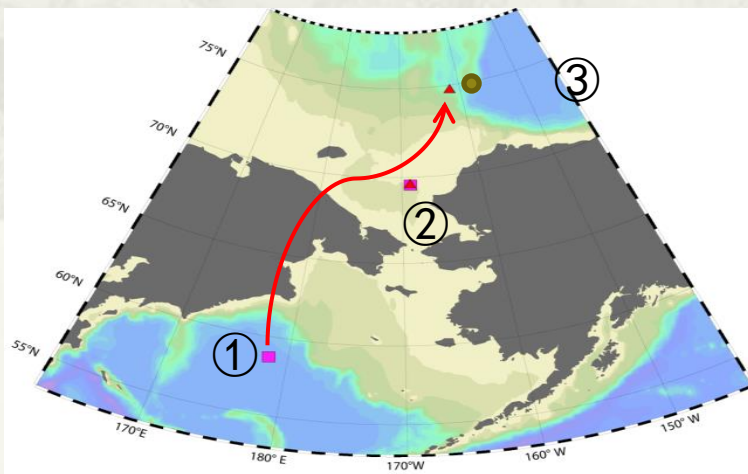
- ① B;
- ② BS;
- ③ R;
- ④ CC;
- ⑤ P;
- ⑥ N;
- ⑦ BB;
- ⑧ AT ;
- ⑨ Ice camps

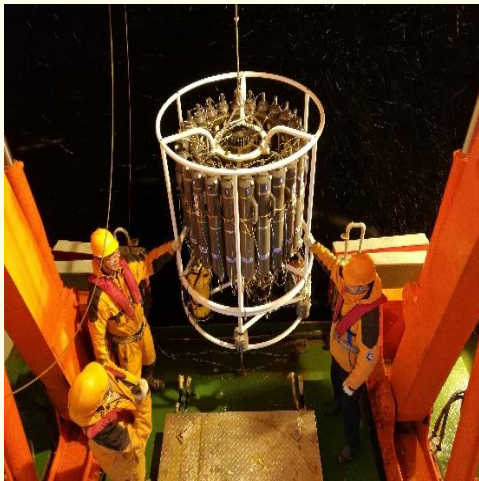
(5) Deployment of ice buoys and mooring systems



- 10 ice buoys;
- 3 mooring systems:

- ① move to Chukchi Plateau
- ② Chukchi Sea
- ③ Chukchi Plateau





CTD deployment



Recovery of mooring system



Ice core sampling



Matter balance buoy

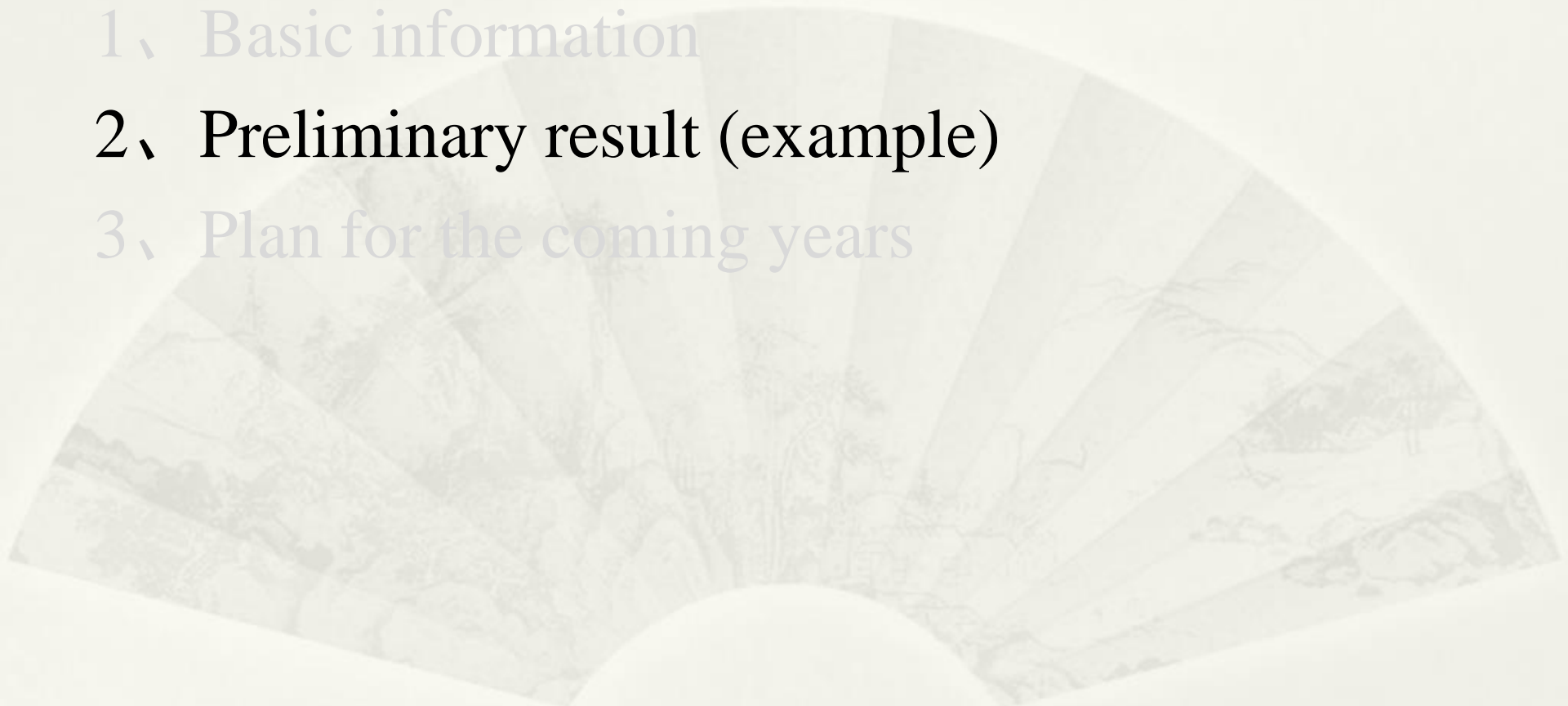


Temperature profile buoy



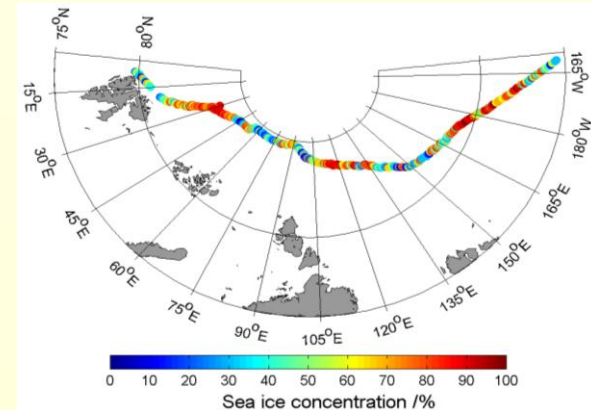
Ice-based AWS

Outline

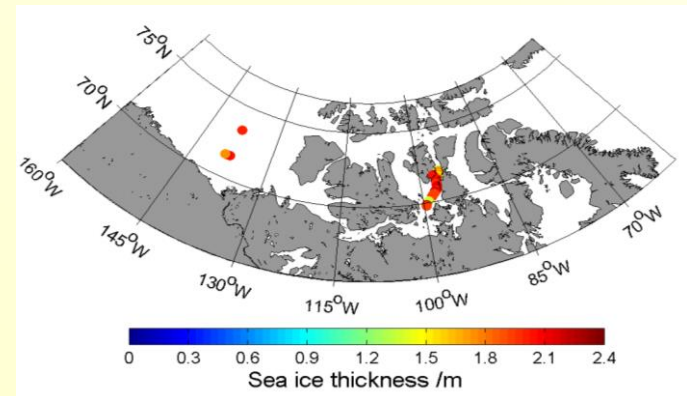
- 1、 Basic information
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- A decorative fan-shaped background with a traditional Chinese ink wash landscape painting. The painting depicts a mountainous landscape with trees, a river, and a small pavilion. The fan is positioned in the lower half of the slide, partially overlapping the text.

(1) Sea ice distribution and thickness

- **Central Passage:** Average sea ice concentrations 6/10~9/10, average thicknesses 1.3~1.8 m, mainly thick first-year ice;
- **Northwest Passage:** mainly in Peel and Victoria Straits, thick multi-year ice.

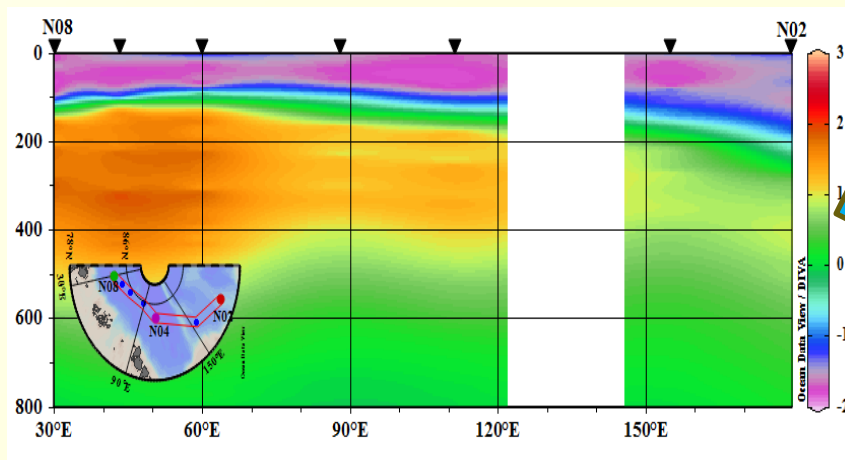


Ice concentrations in central Arctic cean

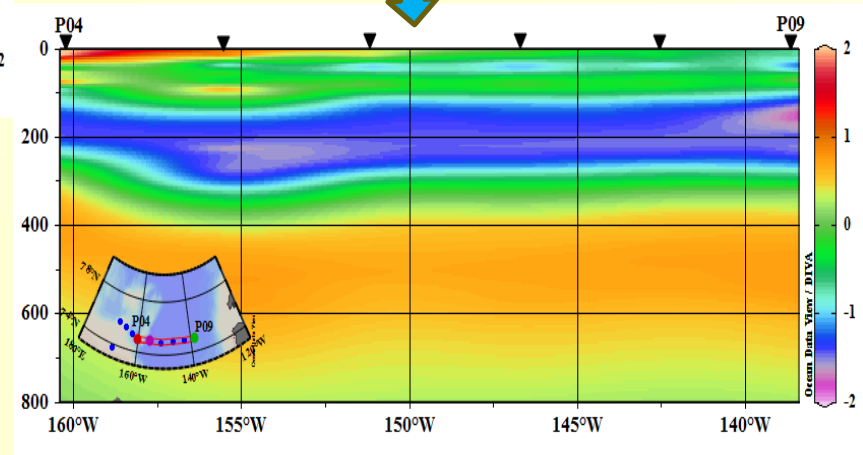
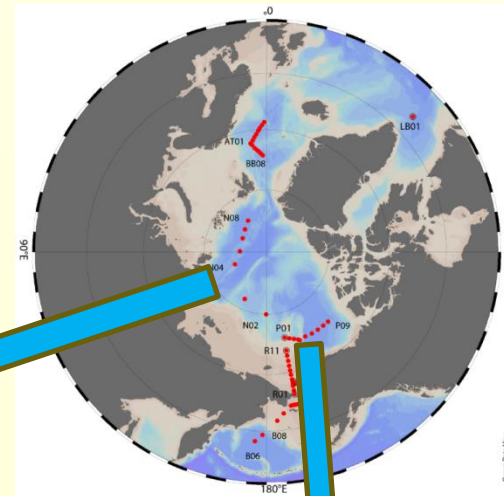


Ice thickness in Northwest Passage

(2) CTD profiles in the central Arctic Ocean

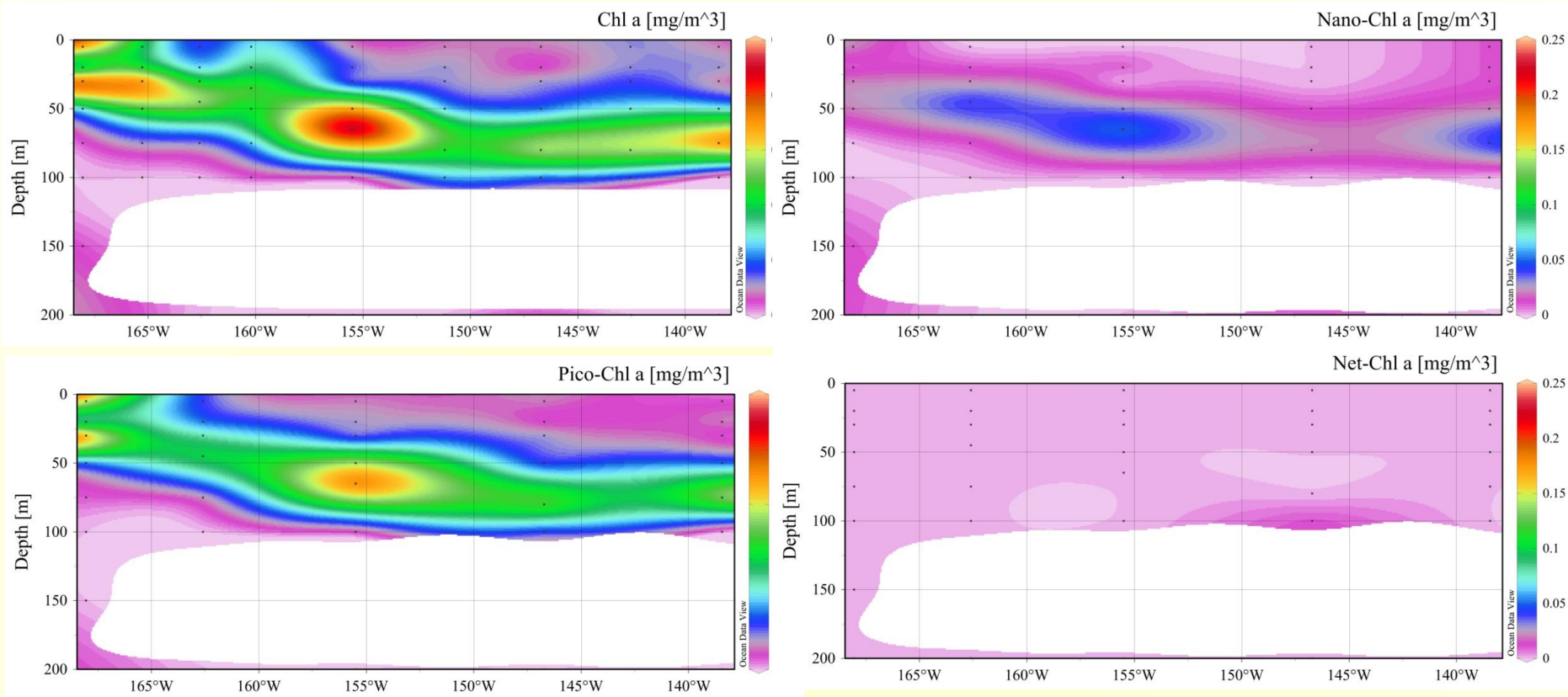


Temperature profile of N08-N02 transect
in central Arctic Ocean



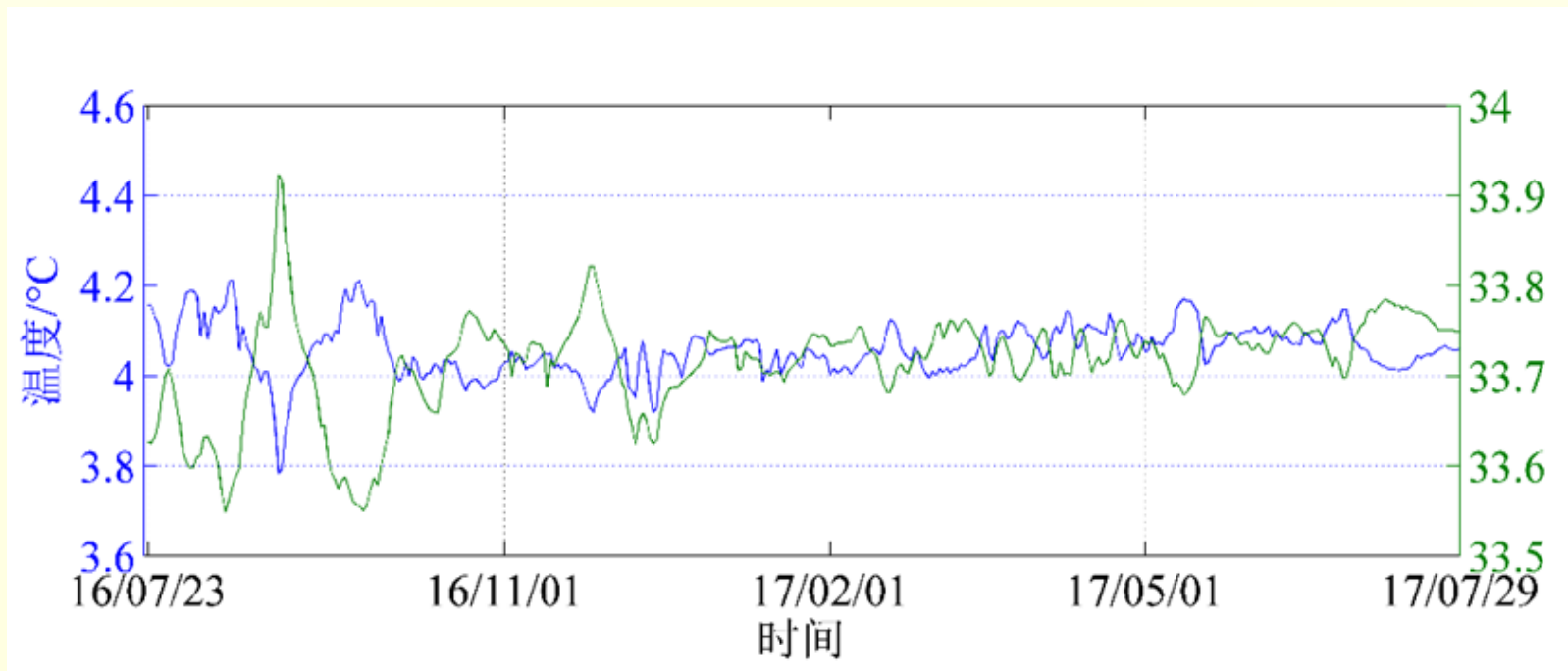
Temperature profile of P04-P09 transect
in Canada Basin

(3) Chlorophyll concentrations in Canada Basin



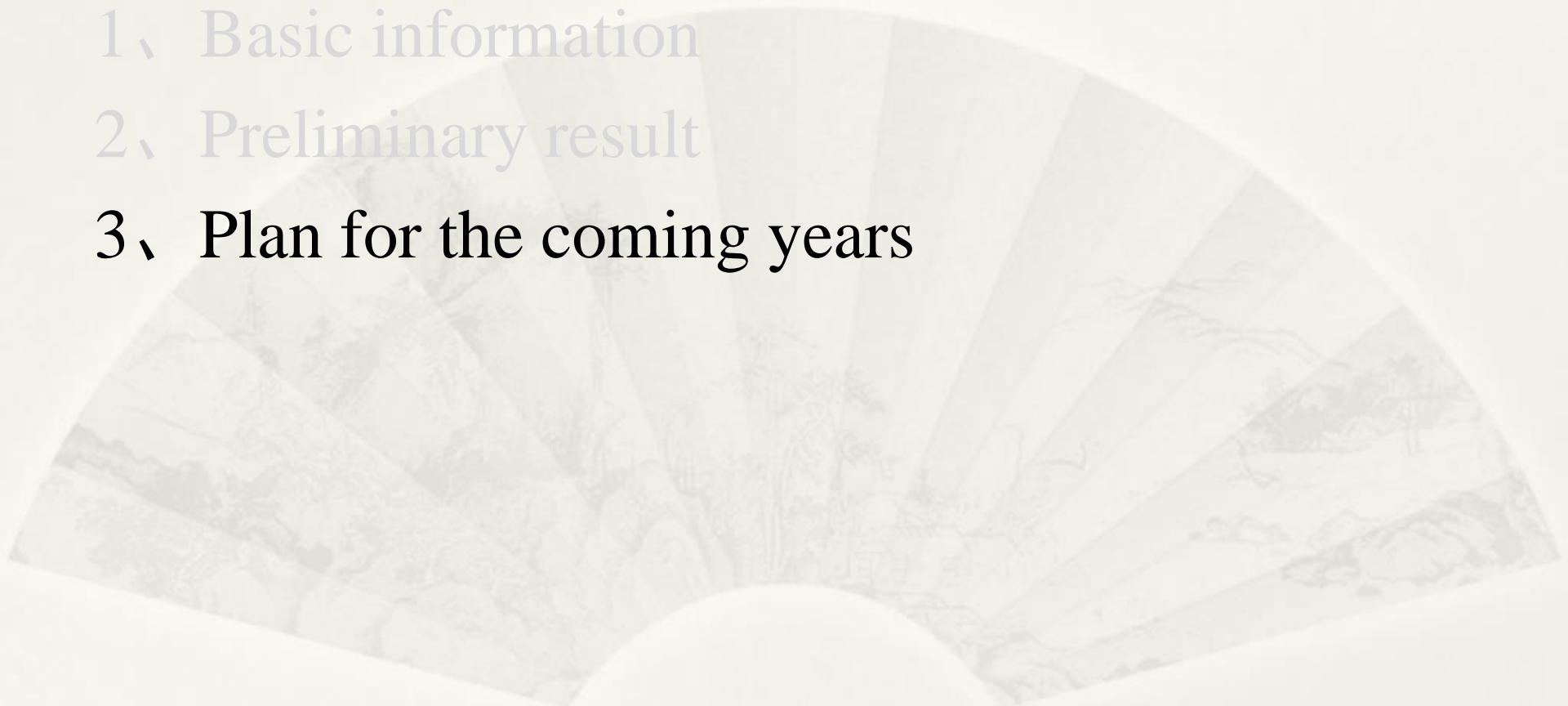
Chl a distribution along section P at Canada Basin during 8th CHINARE (mg/m^3)

(4) Time series T/S records in Bering Sea



Time series records of the mooring system at 300 m in the Bering Sea

Outline

- 1、 Basic information
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- 
- A decorative fan-shaped background with a traditional Chinese ink wash landscape painting. The painting depicts a mountainous landscape with trees, a small pavilion, and a winding path. The fan is positioned behind the text, and its edges are slightly blurred, creating a soft transition into the white background.

(1) Progress of icebreaker Xuelong 2

- Now is under construction in Jiangnan Shipyard, Shanghai
- Arctic test cruise in summer 2019



(2) Cruise plan in coming 3 years

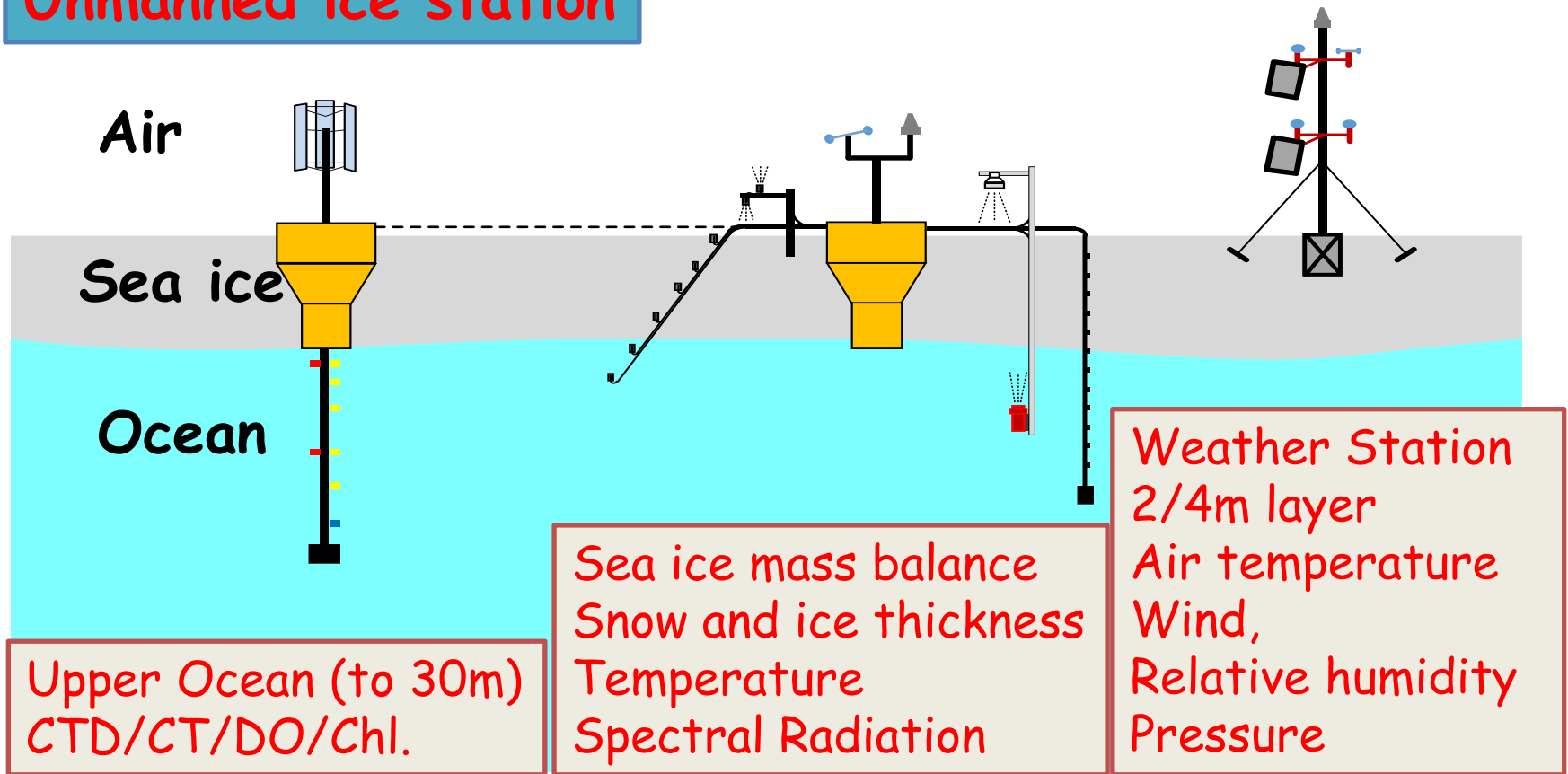
Year	season	R/V	Regions	Remarks
2018	summer	Xuelong	Pacific Arctic	
2019	summer	Xuelong 2	Pacific Arctic	Test cruise
2020	summer	Xuelong	Pacific Arctic	
	Spring or summer	Xuelong 2	Atlantic Arctic	Support MOSAiC

(3) Contributions to MOSAiC

- Fuel supplement to Polarstern
- Buoy array (unmanned ice stations and GPS buoys)
- Sediment traps
- Observation and research on main ice station

(3) Contributions to MOSAiC

Unmanned ice station



Chinese side can provide 2 unmanned ice stations and ~20 GPS buoys

Thanks!

