



## 4.7 Possible MSP scheduling strategy

ECORD Facility Board Meeting #4

ECORD

EUROPEAN CONSORTIUM FOR  
OCEAN RESEARCH DRILLING

June 15<sup>th</sup>–16<sup>th</sup>, 2016 Brussels, Belgium

# **ECORD Facility Board meeting**

## **Proposals presented at the EFB**

- 4.1 - 581-Full2 Late Pleistocene Coralgall Banks (waiting room)**
- 4.2 - 637-Full2+Add6 New England Shelf Hydrogeology (waiting room)**
- 4.3 - 716-Full2 Hawaiian Drowned Reefs (waiting room)**
- 4.4 - 708-Full+Add Central Arctic Paleooceanography (waiting room)**
- 4.5 - 730-Full2 – Sabine Bank Sea Level (new from SEP)**
- 4.6 – 879-Full - Corinth Active Rift Development (new from SEP)**

# Summary of MSP proposals at SEP

Status: Jan. 2016

order is according to relative maturity (top is more mature than bottom)

Proposal	Short Title	Proponent	Country	Ocean	Platform	Status at SEP
730-Full	Sabine Bank Sea Level	Taylor	USA	Pacific	MeBo200	01/16: SEP supportive but queries related to MeBo200 and requirement for HR bathymetric data
879-Full	Corinth Active Rift Development	McNeill	UK	Mediterr.	drill ship	06/16: SEP internet review
852-CPP	North Sea GlaciStore	Stewart	USA	Atlantic	drill rig	07/15: revise
796-ADP	NADIR Nice Amphib. Drilling	Kopf	Germany	Mediterr.	geotech rig;	07/15: revise
866-Pre	Japan Trench Paleoseismology	Strasser	Switzerl.	Pacific	long-piston coring	01/15: submit full prop.
863-MDP	ISOLAT S-Ocean Paleoclimate	Peterson	USA	Southern	long-piston coring	06/14: submit daughter prop.
812-Pre	Ross Sea Glacial History	Wilson	USA	Southern	seabed drill	12/12: submit full prop.
806-Pre	Beaufort Gas Hydrate	Paull	USA	Arctic	geotech rig	05/12: submit full prop. or MDP with 797
797-Pre	Alaska Beaufort Margin	Ruppel	USA	Arctic	drill rig (or JR)	05/12: submit full prop. or MDP with 806
756-Pre	Arctic Ocean Exit Gateway	Jakobsson	Sweden	Arctic	drill ship (JR?)	12/11: submit full prop.

# MSP scheduling strategy

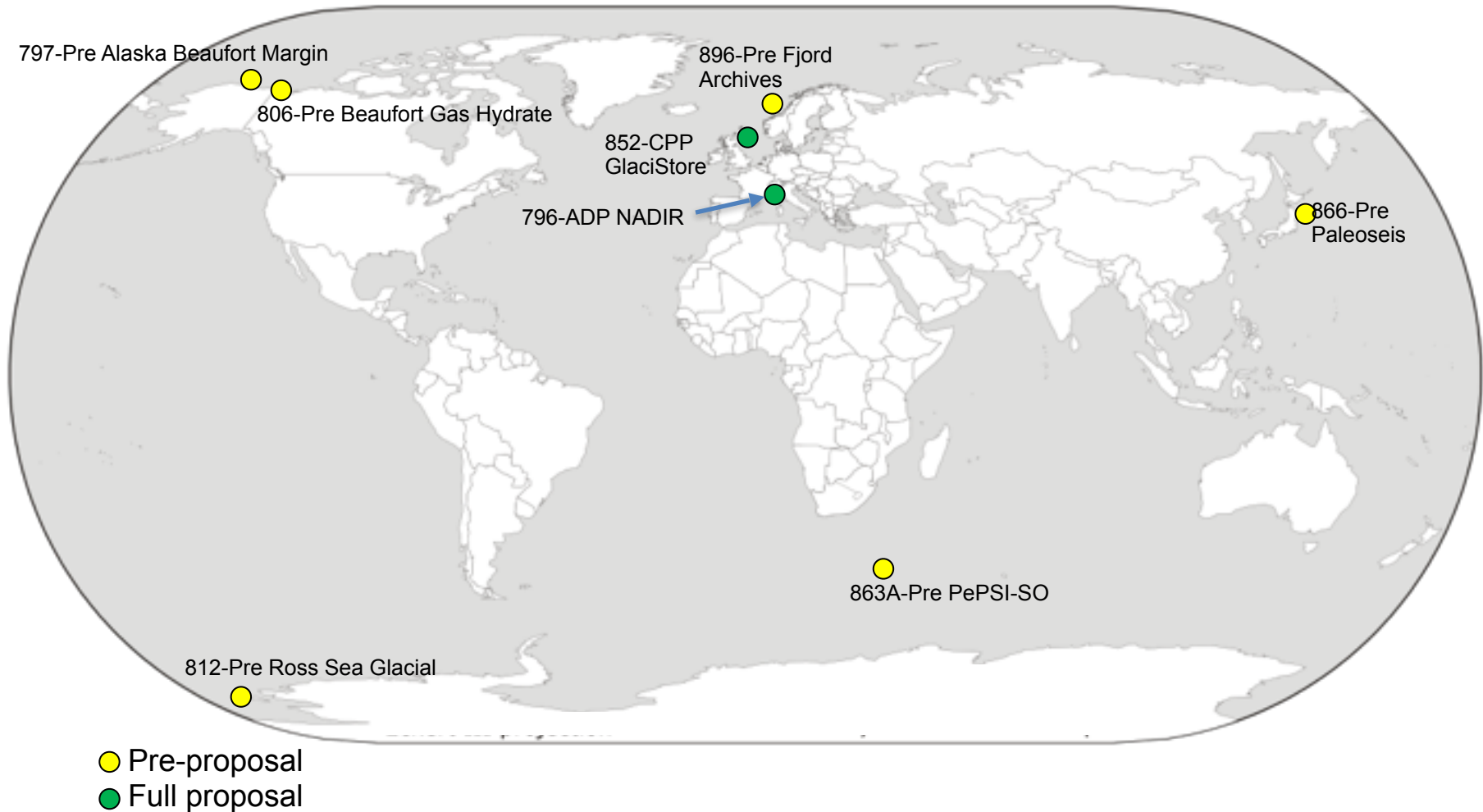
**Previous decisions led to prioritize 2 Ice Area proposals in 2018 =>  
Today, no other proposals have been decided to be programmed.**

## **E-FB Science Board proposes to peer evaluate the cost/impact of the proposals**

- What to do with Proposals in the waiting room ?
- Background to be obtained from analysing success and difficulties of seafloor drilling during the 2 past expeditions.
- E-FB proposes to rank the proposals in trying to balance in between cost (from low to high) and scientific impact (modest to extreme) for each proposal.
- E-FB needs from ESSAC a vision on the future and possible new developments in term of financing priorities to advance on the programming of the three proposals (581, 637, 716) and P-708.
- How to prioritise new Proposals received from SEP and next ones in the SEP holding bin ?

# Active MSP proposals at SEP

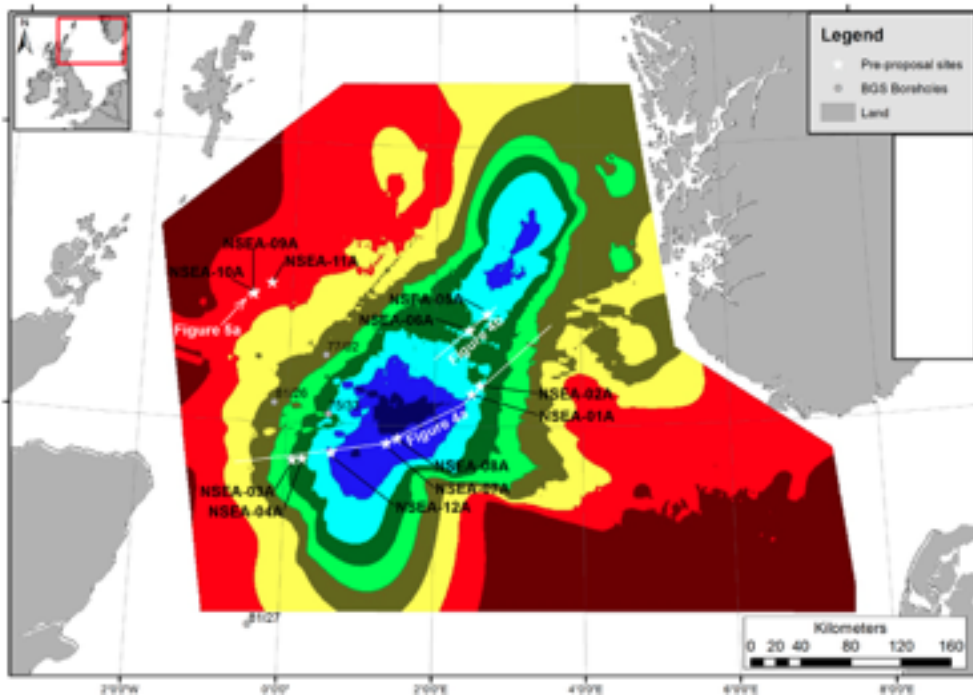
Status: June 2016



# MSP 852-CPP: North Sea GlaciStore (Stewart)

**IODP Theme:** Climate and Ocean Change

**Region:** North Sea (NE Atlantic)



## Drilling:

- 4 primary & 8 alternate sites, 100-180 m WD, 30-800 m penetration depths
- drill rig (why not JR?)
- ECORD cost category: medium to high
- possible CPP or industry support?

## Objectives:

- Investigate how shallow Neogene and Quaternary sediments form overburden and seal to underlying CO<sub>2</sub> storage reservoirs.
- Establish a depositional and chronological framework for multiple cycles of glacial advance and retreat preserved in the center of the North Sea Basin.
- Characterise the pore fluids (dissolved gases, salts and isotopes) to identify fluid history, age, and degree of mixing.
- Determine the measurable impact on the geomechanical properties (porosity, rock stiffness, in-situ stresses, pore pressure) of underlying strata caused by cycles of glacial loading and unloading.

## Site survey data: ●

Needed: Reprocessing of existing MCS data to yield higher resolution, nav, bathy, backscatter, velocity, seafloor samples

## Current status at SEP:

04/2016: CPP2 received



# MSP 796-Full: Ligurian Landslide / ADP: Nice Amphib. Drilling (Kopf)

**IODP Theme:** Earth in Motion

**Region:** Mediterranean Sea (France)

## Objectives:

- Study factors governing slope failure in an area with multiple triggers
- Identify permeable layers in Plio/Quaternary rocks onshore, glacial and postglacial delta deposits and underlying Pliocene rock offshore to define their role in the aquifer system as well as in slope failure
- Sample prominent discordant contacts and test whether they may serve as failure and sliding surfaces
- Utilize core samples for deformation and permeability experiments and relate them landslide risk/societal threat

## Drilling (offshore part):

- 4 primary & 4 alt. sites, 20-104 m WD, 60-150m penetration depths
- geotech rig or seabed-drill
- ECORD cost category: low

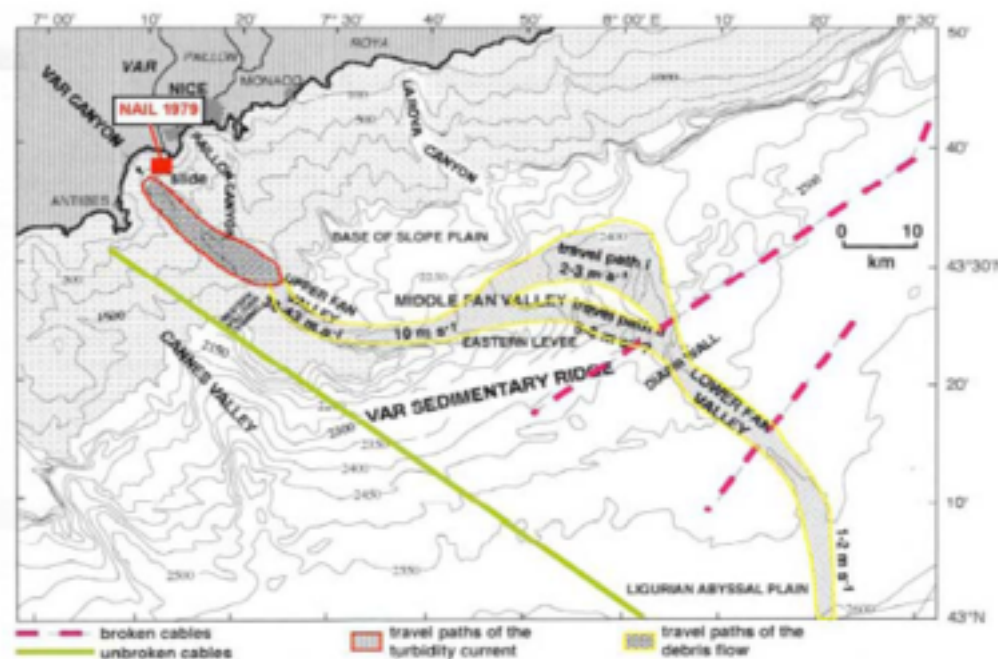
## Site survey data: 3 ●

Good data exist, but items missing, poorly organized, and inconsistent interpretations

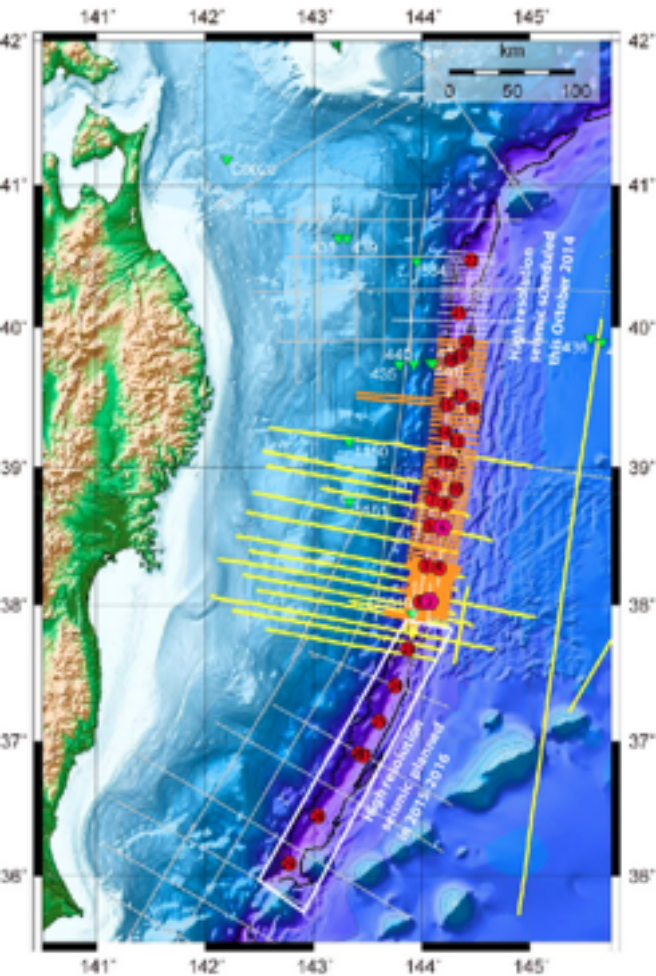
## Current status at SEP:

07/2015: Revise;

Proponents submitted ADP to ICDP in 01/15



# MSP 866-Pre: Japan Trench Paleoseismology (Strasser)



**IODP Theme:**  
Earth in Motion

**Region:** NW  
Pacific (Japan)

## Objectives:

- Identify sedimentological, physical, chemical, and biogeochemical proxies of event deposits in the sedimentary archive that allow for confident recognition and dating of past earthquakes
- Explore the spatial and temporal distributions of such proxies and investigate how they relate to fault characteristics and rupture areas of great earthquakes across the entire Japan Trench subduction system
- Elucidate the long-term recurrence pattern of events similar to 2011 Tohoku earthquake (together with Chikyu proposal 835-Full - Japan Trench Tsunamigenesis)

## Drilling:

- 25 sites (plus 2 Chikyu sites), 6800-8000 m WD, 50 m penetration depths
- long-piston corer
- ECORD cost category: low

**Site survey data:** 3 ●

Some data in SSDB: Needed: high-res subbottom profiler data; bathy maps

## Current status at SEP:

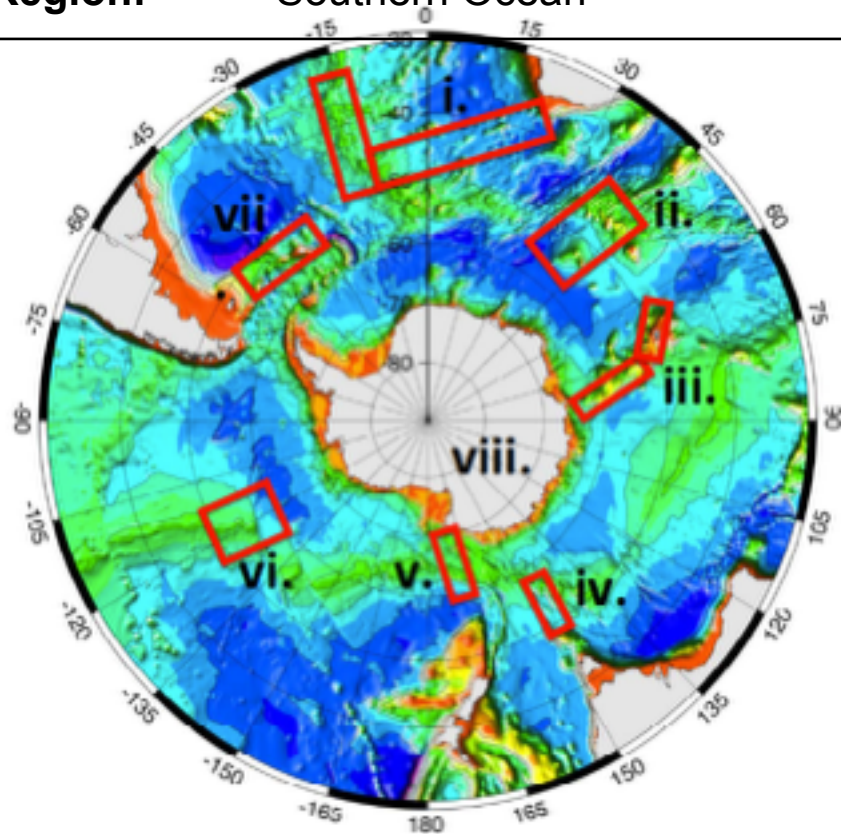
01/2014: Submit full proposal



# MSP 863A-Pre: Pleistocene Paleoceanography, SW Indian sector of SO (Crosta) – daughter proposal to 863-MDP

**IODP Theme:** Climate and Ocean Change

**Region:** Southern Ocean



## Drilling:

- 8 primary sites; 900-5290 m WD, 60 m penetration depths
- long-piston coring
- ECORD cost category: low

## Objectives:

- Fluctuations of the ACC and ocean fronts and ensuing inter-ocean surface and deep water transports during periods of rapid climate change;
- Variability of latitudinal sea-ice extents, westerly wind strength and dust deposition, and the biological pump and their implications for air-sea gas exchange and CO<sub>2</sub>;
- Biogeochemical inventories of CDW and their relation to biological fluxes;
- Import of Northern Hemisphere waters to the CDW at a location proximal to the primary entrance of North Atlantic Deep Water to the Southern Ocean.

**Site survey data:** 4 ●

Some data in SSDB; not yet reviewed by SEP

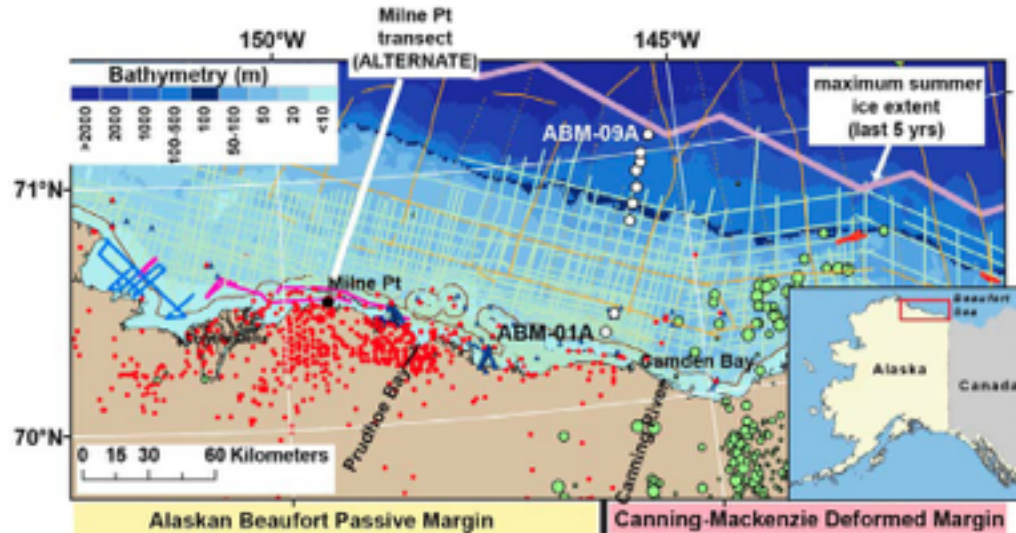
## Current status at SEP:

04/2016: submitted; not yet reviewed

# MSP 797-Pre: Alaska Beaufort Margin (Ruppel)

**IODP Theme:** Climate and Ocean Change

**Region:** Alaska - Arctic Ocean



## Objectives:

- Constrain how climate change that commenced at the end of the Last Glacial Maximum (warming and sea level rise) has affected climate-sensitive (permafrost and hydrate-bearing sediments) deposits in two Arctic settings that are also considered highly vulnerable to contemporary and future climate change.
- Obtain a much-needed regional sea level curve by recovering the full thickness of Holocene and Late Pleistocene sediments.
- Determine the contributions of hydrate dissociation, new methane generation, and methane migration from depth to total methane and inform predictions of future methane emissions.

## Drilling:

- 3 primary MSP sites, 20-80 m WD, 600 m penetration depths
- drill rig for MSP sites (JR for 6 other sites)
- ECORD cost category: low to medium

## Site survey data: 5 ●

Needed: 2D MCS grid, 3.5 kHz, interpretations, velocity, bathy, backscatter, seafloor samples; no data in SSDB

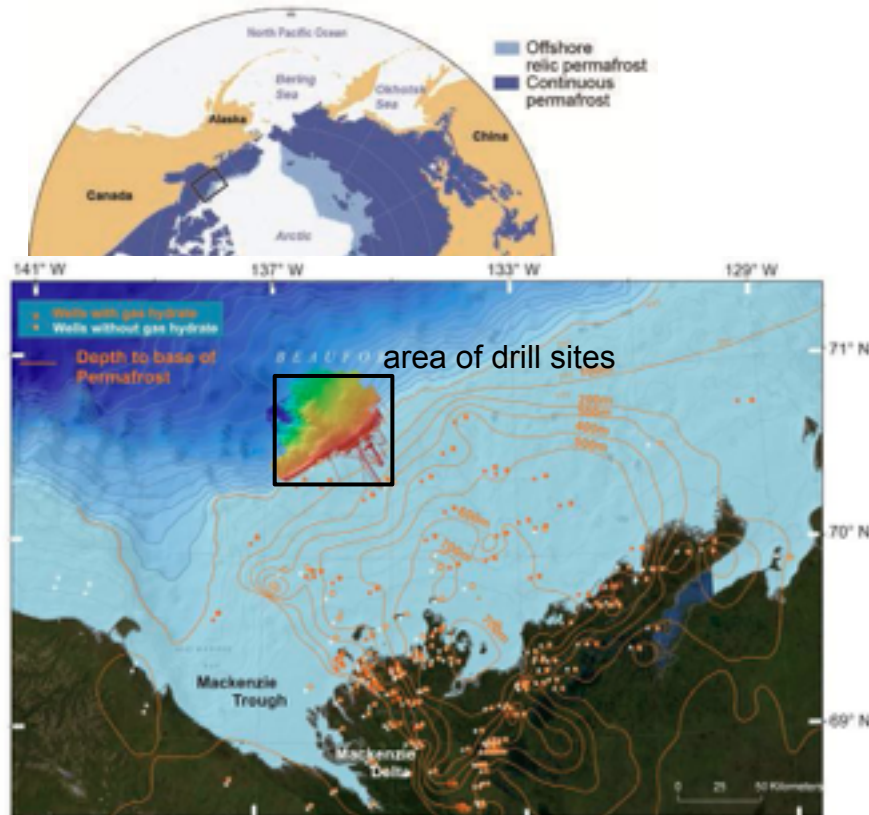
## Current status at SEP:

05/2012: submit full prop. or MDP with 806

# MSP 806-Pre: Beaufort Gas Hydrate (Paull/Dallimore)

**IODP Theme:** Climate and Ocean Change

**Region:** Alaska - Arctic Ocean



## Drilling:

- 5 primary sites, 50-300 m WD, 100-300 m penetration depths
- geotech rig or seabed drill
- ECORD cost category: low to medium

## Objectives:

- Document the rapidly changing transitional geologic environments of the southern Beaufort Sea from the mid shelf to upper slope.
- Reconstruct the Quaternary transgression-regression history of the shelf including sea level fluctuations and evidence of glacial ice cover, ice shelves and a Younger Dryas outburst flood.
- Development and verification of a geothermal model which can then be used to estimate the sensitivity of this setting to future climate warming linkages.
- Study the stability marine gas hydrate in this setting and geologic processes responsible for the formation of large-scale sea floor expulsion features.

## Site survey data: 5 ●

Needed: Crossing 2D MCS lines, 3.5 kHz data, interpretations, velocity, bathy, backscatter, seafloor samples, nav. No data in SSDB

## Current status at SEP:

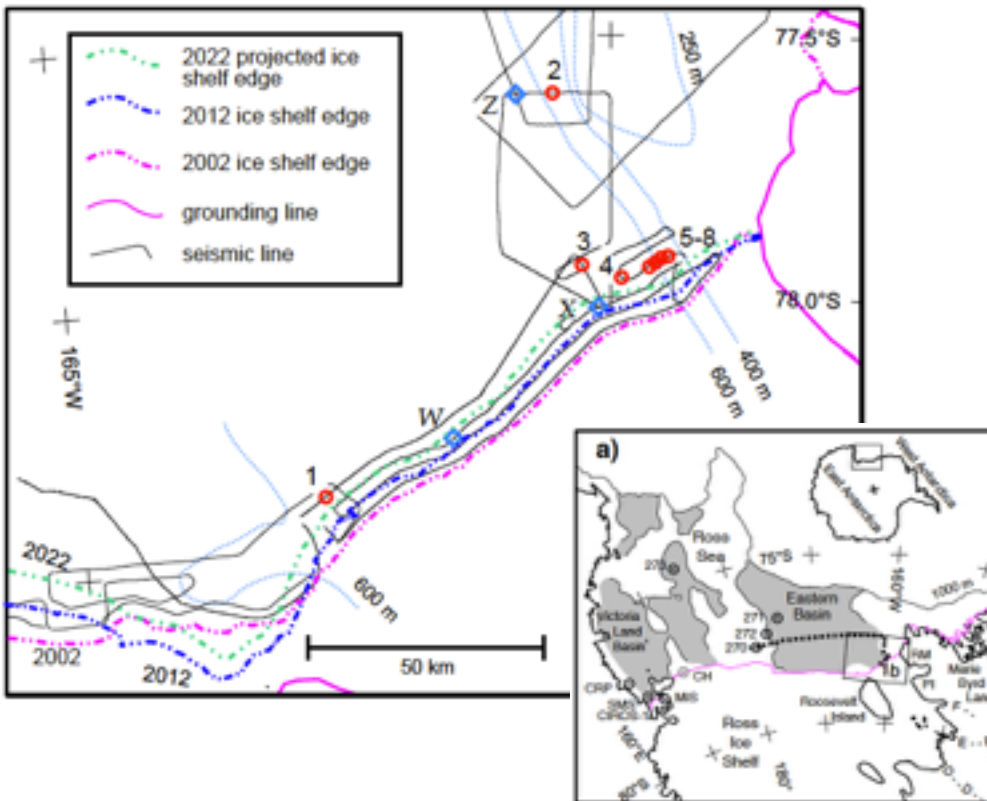
05/2012: submit full prop. or MDP with 797



# MSP 812-Pre: Ross Sea Glacial History (Wilson)

**IODP Theme:** Climate and Ocean Change

**Region:** Ross Sea (Southern Ocean)



## Drilling:

- 8 primary sites, 566-698 m WD, 60-80 m penetration depths
- seabed drill
- ECORD cost category: low

## Objectives:

- Obtain geologic evidence of the earliest history (Oligocene - early Miocene) of the West Antarctic Ice Sheet by drilling buried suspected glacial sequences;
- Confirm glacial nature of probable Oligocene deposits from ice sheets that must have been sourced in West Antarctica;
- Improve dating of sequences;
- Improve understanding of Oligocene glacial variability;
- Recover record of Eocene-Oligocene
- Investigate greenhouse-icehouse transition.

## Site survey data: 5 ●

Needed: High-res MCS or SCS data, subbottom profiler data, bathy, backscatter, seafloor samples, nav. No data in SSDB.

## Current status at SEP:

12/2012: submit full proposal

# MSP 896-Pre: North Atlantic Fjord Sediment Archive (Giraudeau)

**IODP Theme:** Climate and Ocean Change

**Region:** Norwegian Sea



## Coring:

- 22 primary sites, 857-90 m WD, 12-70 m penetration depths
- Long piston core
- ECORD cost category: low

## Objectives

- (Sub)decadal and (sub)centennial scale variations of the marine and continental climates.
- Dynamics of the Western Scandinavian and Svalbard ice-sheets and tidal glaciers.
- Role of oceanic and atmospheric circulation changes, and sea-level changes.
- land-to-marine transfer of inorganic and organic material in modern and past glaciated and non-glaciated coastal environments.
- Modern changes of coastal environment
- Nature of past mass movements in fjord systems (mass failures, slides, turbidity currents).
- Role of climatic and local and regional tectonic events on the occurrence, nature and frequency of coastal geohazards.
- Impact of offshore megaslides on mass transport deposits in Norwegian fjords.

## Site survey data: 5 ●

Needed: High-res MCS or SCS data, subbottom profiler data, bathy, backscatter, seafloor samples, nav. No data in SSDB.

## Current status at SEP:

04/2016: submitted