

## **Laminated sediments as proxy of extreme meltwater events: the NW Barents Sea marine record of MWP-1a**

Renata Giulia Lucchi<sup>1</sup>, Leonardo Sagnotti<sup>2</sup>, Angelo Camerlenghi<sup>1</sup>, Patrizia Macrì<sup>2</sup>, Michele Rebesco<sup>1</sup>, Maria Teresa Pedrosa<sup>3</sup>, Giovanna Giorgetti<sup>4</sup>

<sup>1</sup>Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS), Borgo Grotta Gigante, 42C, I-34010 Sgonico (TS), Italy, [rglucchi@inogs.it](mailto:rglucchi@inogs.it);

<sup>2</sup>Istituto Nazionale di Geofisica e Vulcanologia (INGV), Via di Vigna Murata 605, I-00143 Roma, Italy;

<sup>3</sup>Instituto Andaluz de Ciencias de la Tierra, CSIC - Universidad de Granada, Avda de las Palmeras 4, 18100 Armilla (Granada), Spain;

<sup>4</sup>Dipartimento di Scienze della Terra, Università di Siena, via Laterina 8, I-53100 Siena, Italy.

### **Abstract**

The upper continental slope of the Storfjorden-Kveithola Trough Mouth Fans (NW Barents Sea, Arctic) contains a several m-thick late Pleistocene sequence of plumites composed of laminated mud interbedded with sand and silt layers. Radiocarbon ages revealed that deposition occurred during about 130 years at a very high sedimentation rate of 3.4 cm a<sup>-1</sup>, at about 7 km from the present shelf break (Lucchi et al., 2013). Palaeomagnetic and rock magnetic analyses confirm the existence of a prominent, short-living sedimentary event (Sagnotti et al., 2011; 2016). The plumites appear laterally continuous and were correlated with the sedimentary sequences described west of Svalbard and neighbouring glacial depositional systems representing a major event at regional scale appointed to correspond to the deep-sea sedimentary record of Meltwater Pulse-1a (Lucchi et al., 2015). Thick laminated sequences have been observed along many polar margins including the Labrador Sea, and Antarctic margins mostly with older ages that can be associated to the older MWP-19ka. The presence of prominent laminated sequences on polar continental margins can be used as proxy for meltwater events. Their temporal identification can help in the reconstruction of the dynamic history of polar ice sheets.

**Keywords:** Meltwater Pulse 1a, plumites, NW Barents Sea, Arctic

### **References**

- Lucchi, R.G., Camerlenghi, A., Rebesco, M., Colmenero-Hidalgo, E., Sierro, F.J., Sagnotti, L., Urgeles, R., Melis, R., Morigi, C., Barcena, M.-A., Giorgetti, G., Villa, G., Persico, D., Flores, J.-A., Rigual-Hernandez, A.S., Pedrosa, M.T., Macrì, P., Caburlotto, A., 2013. Postglacial sedimentary processes on the Storfjorden and Kveithola trough mouth fans: Significance of extreme glacimarine sedimentation. *Global and Planetary Change* 111, 309-326.
- Lucchi, R.G., Sagnotti, L., Camerlenghi, A., Macrì, P., Rebesco, M., Pedrosa, M.T., Giorgetti, G., 2015. Marine sedimentary record of Meltwater Pulse 1a in the NW Barents Sea continental margin. *arktos online* DOI 10.1007/s41063-015-0008-6
- Sagnotti, L., Macrì, P., Lucchi, R.G., 2016. Geomagnetic palaeosecular variation around 15 ka ago from NW Barents Sea cores (south of Svalbard). *Geophysical Journal International* 204, 784–797.
- Sagnotti L., Macrì P., Lucchi R.G., Rebesco M., Camerlenghi A., 2011. A Holocene paleosecular variation record from the northwestern Barents Sea continental margin. *Geochemistry, Geophysics, Geosystems*, 12 (11), art. no. Q11Z33.

