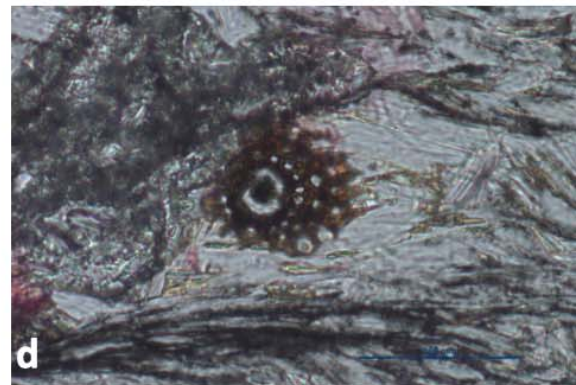1S a - Sandy grey micaschist containing radiolarians – Beltrando 2014 Fieldtrip - stop 1.6
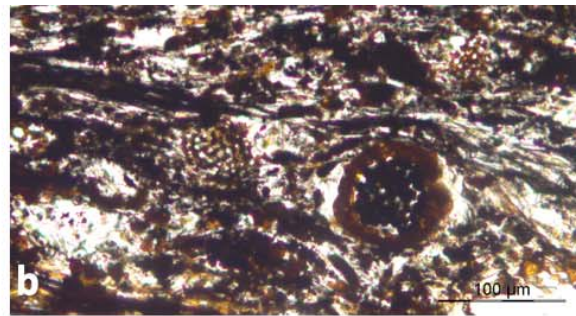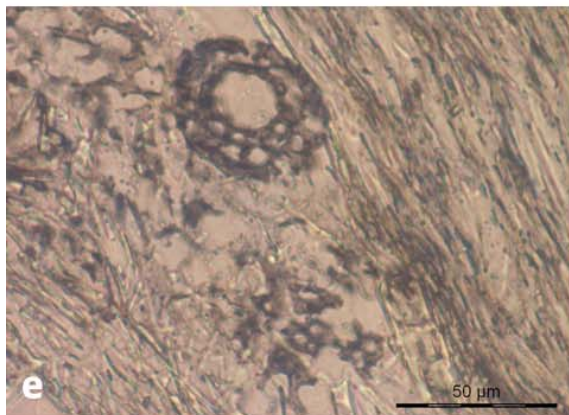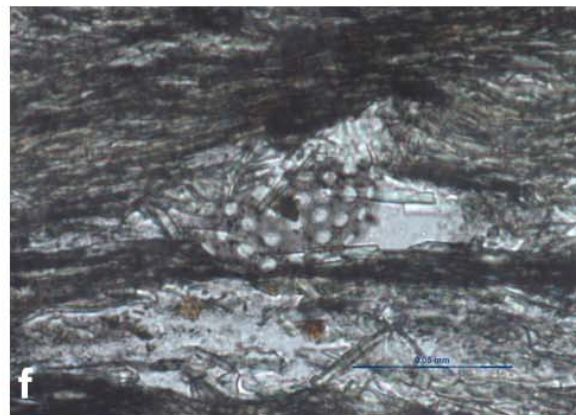
1S b - Beltrando sample VA 13
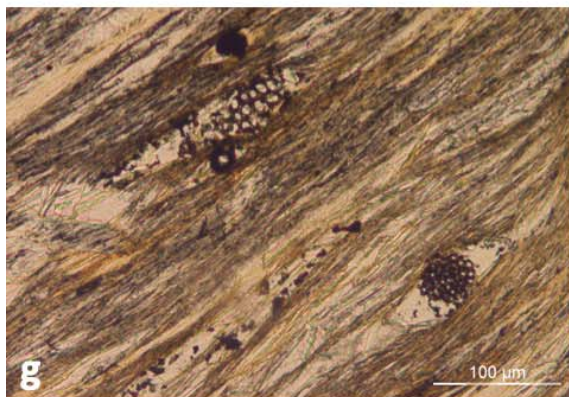
1S c - Beltrando sample VA 13

1S d - Beltrando sample VA 13

1S e - Beltrando sample VA 20

1S f - Beltrando sample VA 20

1S g - Beltrando sample VA 51
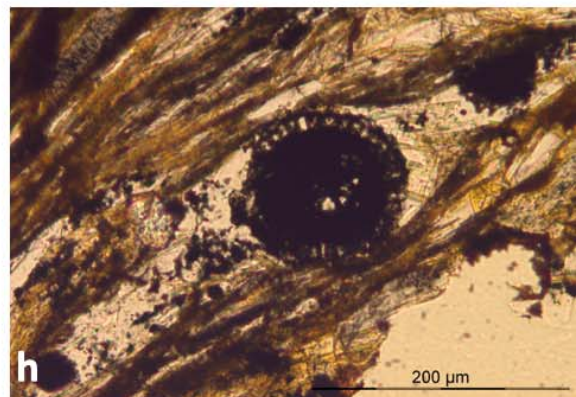
1S h - Beltrando sample VA 51

Fig. 1S - Late Jurassic to Middle Cretaceous Radiolarian photo micrographs samples from Beltrando (2012) within the grey micaschist from the Punta Rossa unit (schistes à blocs Unit 2b). These radiolarians are similar to those described by Burri (Fig. 15, 1958) and assigned to Early Cretaceous. No age was provided by Beltrando (2012) for these fossils. M. Beltrando passed these photos in 2015 to Marthaler and De Broucker to attempt to date the collected microfossils with our contacts (Patrick de Wever and Luis O'Dogherty).

**2S a** - Calcschists intensely sheared - **Petit Saint Bernard Unit**
Passage des Trois Moines

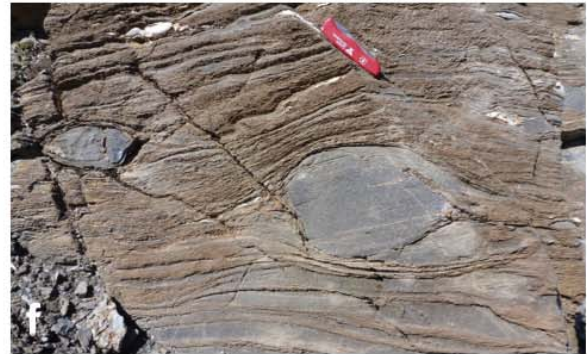**2S b** - Calcschists intensely sheared - **Arguerey Unit**
Arguerey cliff

**2S c** - Calcschists intensely sheared - **Petit Saint Bernard Unit** -
Passage des Trois Moines

**2S d** - Calcschists intensely sheared - **Arguerey Unit** - Under
the Hermite Glacier

**2S e** - Calcschists intensely sheared - **Petit Saint Bernard Unit** -
Passage des Trois Moines

**2S f** - Calcschists intensely sheared - **Arguerey Unit** - Under
the Hermite Glacier

**2S g** - **Collet des Rousses** metabreccia - grey marble clasts

**2S h** - **Collet des Rousses** metabreccia - dark/light
grey marble clasts

Fig. 2S - Lithofacies and deformation with shear lineation of the Liassic PSBA units. Both units display the same calcschists lithofacies and are affected by a severe deformation (a to d) associated with eclogitic metamorphism. The "nodular" limestone facies (e-f) in both units has a tectonic origin. The view is perpendicular to the stretching lineation and therefore correspond to sections of the stretched elements (pencils cut perpendicularly), hence the confusion made sometimes for this tectonic facies with the Collet des Rousses breccia. Sedimentary breccia from the Collet des Rousses, also occurring in both PSBA units, contains mainly carbonate fragment in a typical "spongy" matrix (g to h).
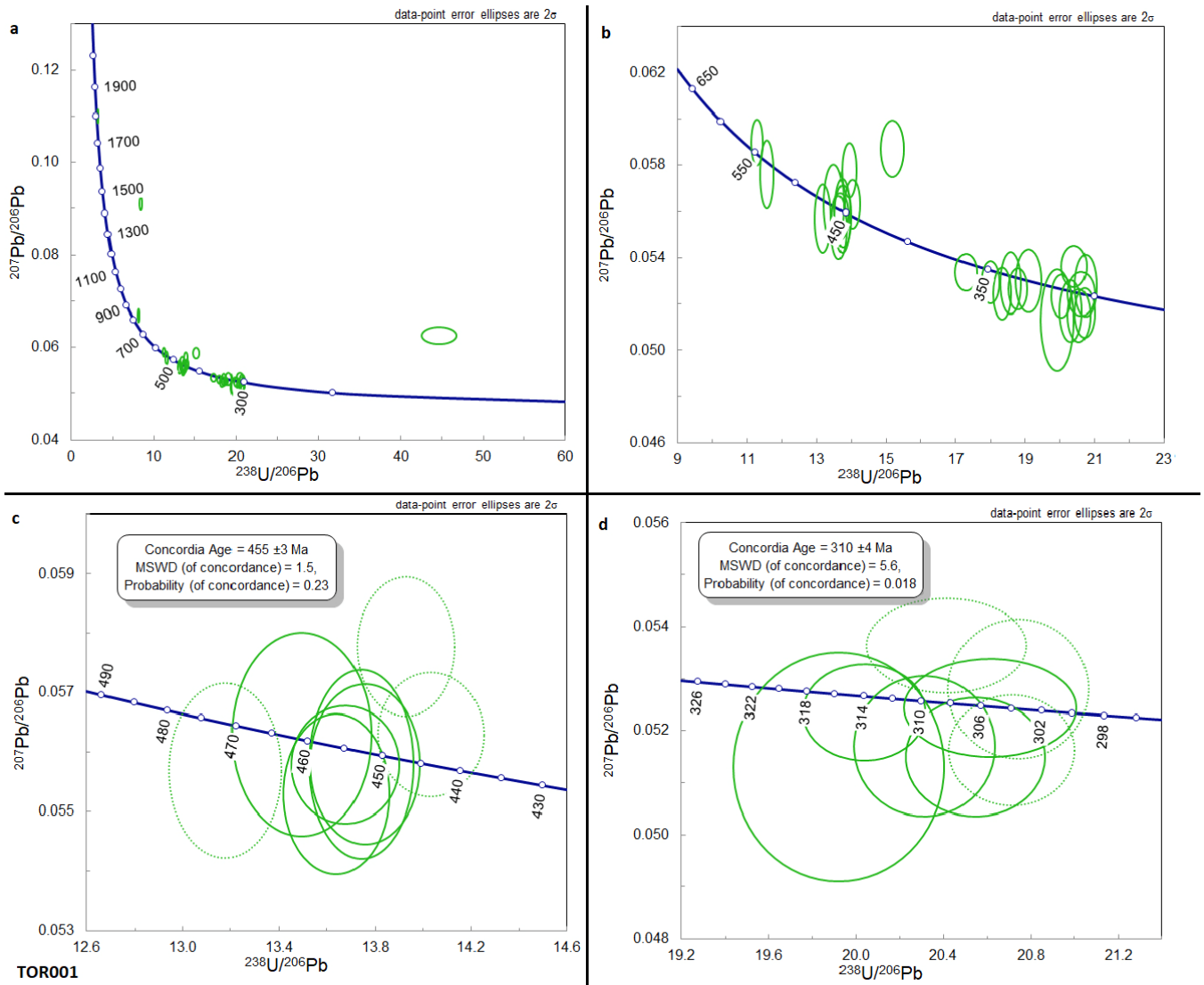
Fig. 3S - New U/Pb dating of a Versoyen layered gabbro block near Tormottaz (outcrop photos Fig. 7f and 8d). (a) Plot of the 29 zircon analyses (sample TOR001A) on the Tera-Wasserburg concordia diagram (Tera and Wasserburg, 1972). (b) focus on 26 analyses, (c) focus on the Ordovician concordant age of $455 \pm 3$ Ma, (d) focus on the concordant Carboniferous age of $310 \pm 4$ Ma.

## GEOCHRONOLOGY DATA PROCEDURES

The sample preparation, including crushing, zircon extraction and thin section making has been operated in the BRGM laboratories. The zircons extracted are abundant enough to perform dating but always small (< 100 μm). Thirty spots have been analyzed and, because of the reduced size of the crystals only one analysis has been performed in each crystal, always in the center. The isotopic analyses have been performed by laser-coupled ICP-MS spectrometry in the GéoRessources Laboratory in Nancy (France). An ICP-MS Nu Attom spectrometer coupled with a low impulsion duration New Wave 193 nm laser has been used. The sample is located in a two volumes helium cell and argon and nitrogen are added as vector gases after ablation. The occurrence of common-lead is monitored by following the intensity of the 204 (Pb+Hg) mass. No correction for common-lead was necessary. The U signal is calculated from $^{238}$U with a $^{238}$U/$^{235}$Pb reference ratio of 137.88. The U/Pb and U/Th ratios are corrected from fractionation by repeated measurements on the zircon 91500 standard (Wiedenbeck et al., 1995). Precision and reproducibility are controlled by repeated measurements on the standard Plésovice zircon ($338 \pm 1$ Ma, Slama et al., 2008). Data reduction is operated with Iolite3.0® program and all the calculations are obtained owing to the ISOPLOT/EX program (version 4.15, Ludwig, 2012) at 95% confidential level with a 2σ incertitude (Fig. 3S and Table 1S). The correlation factor Rho (Table 3S) is calculated according to the equation of Schmitz and Schoene (2007).