Ongoing F-TRG research, February/March sponsor visits, past and upcoming webinars, cross section building and restoration training course, 2018 sponsor meeting and recent/relevant fold-thrust belt papers.

**Ongoing research and other work**

**Raman spectroscopy to determine thermal maturity**

As part of an ongoing project investigating the controls on along strike structural variation in the French Subalpine chains, we are using carbonate samples from the field area to determine thermal maturity using Raman Spectroscopy. As carbon within rocks is heated it undergoes a reaction (thermal alteration), which involves both the formation and reordering of aromatic subunits towards stacked layers such as graphite. By analysing the relative proportions of disordered and graphite structure in the carbon using Raman Spectroscopy, we can estimate thermal maturity of the samples and determine if changes in thermal maturity correlate to changes in structural style of folds.

By projecting the positions of the samples onto cross sections we can calculate how the thermal maturity varies with depth. Preliminary results suggest a good correlation between the relative depth of the sample and its thermal maturity (indicated by the R1 ratio (ID/IG)). The next step is to calibrate the R1 (ID/IG) for temperature. We will then apply this methodology to further samples to determine how thermal maturity varies across the fold-thrust belt.

*Left: initial Raman Spectroscopy results showing R1(ID/IG) – an indicator of thermal maturity – against relative sample depth from transect 1.*

**News and events**

**In-house visits**

Hannah visited Santos in Adelaide (26th-27th February) and Oil Search in Sydney (28th February-1st March). Discussions were had on model building workflows and structural issues in Papua New Guinea.
Based on these discussions the 2018 planned deliverables have been adjusted to address some of the specific issues faced when interpreting structures in PNG. Hannah also presented a lunchtime seminar to Santos and Oil Search on ‘Structural style in fold-thrust belts’.

F-TRG webinars

Three webinars have been presented to sponsors so far in 2018:

- 23rd February: ‘The use of photogrammetry for building 3D models and extracting geological data from fold-thrust structures – Adam Cawood.

The next webinar will be presented by Clare Bond on ‘Uncertainty and biases in interpreting data’ on 23rd April 2018 (14.30 Adelaide, 15.00 Sydney).

Training course: ‘Cross section construction and restoration in fold-thrust belts’

F-TRG will be running a structural geology training course associated with the annual sponsor meeting. The course will run from Tuesday 14th August (approximate start time 09.30)-Thursday 16th August (approximate end time 12.30) at the Santos Centre in Adelaide. The training course outline is as follows:

**Tuesday 14th August:** course introduction, fieldtrip to Hallet Cove (data collection and cross section exercise), cross section construction techniques.

**Wednesday 15th August:** cross section construction exercises using multiple case studies from various fold-thrust belts globally (individual and group exercises).

**Thursday 16th August:** introduction to cross section restoration methods and restoration exercises. The training course is open to up to 30 participants (15 per sponsor company); please let us know if you wish to attend (email h.watkins@abdn.ac.uk).

F-TRG sponsor meeting 2018

The final F-TRG sponsor meeting for phase 1 will be held at the Santos Centre in Adelaide on the afternoon of Thursday 16th August. Up to two representatives per sponsor company are invited to attend the sponsor meeting.

Other news and event information

The Fold-Thrust Research Group is on Twitter! Follow us (@FoldThrust) for updates on F-TRG activities and relevant fold-thrust information.
Conferences attended

EGU (European Geosciences Union), 8th-13th April 2018, Vienna

Clare attended the 2018 EGU conference and exhibition in Vienna, where she also co-convened a session on ‘Understanding the unknowns: recognition, quantification, influence and minimisation of uncertainty in the geosciences’. Several F-TRG presentations were given at the conference:

- ‘Impact of seismic image quality and presentation on interpretation uncertainty’. Juan Alcalde, Clare Bond, Gareth Johnson, Jennifer Ellis, Rob Butler & Charles Randle.
- ‘Storage site selection process in the North Sea for the ACT ACORN CCS Project’. Juan Alcalde, Clare Elizabeth Bond, Alan James, Hazel Robertson, Tim Dumenil, David Christopher Pilbeam, Niklas Heinemann, R. Stuart Haszeldine, Saeed Ghanbari, Eric J. Mackay, Daniel R. Faulkner, Michael J. Allen, and Richard H. Worden.
- ‘Quantifying geological CO2 storage security to deliver on climate mitigation’. Stephanie Flude, Juan Alcaide, Mark Wilkinson, Gareth Johnson, Katriona Edlmann, Clare Bond, Vivian Scott, Stuart Gilfillan, Xènia Ogaya, and R. Stuart Haszeldine.
- ‘eRocK: an online, open-access repository of virtual outcrops and geological samples in 3D’. Adam J. Cawood and Clare E. Bond.

Recent/relevant publications


Next issue...

The next issue of the F-TRG newsletter will be issued in July 2018 and will include an update on F-TRG activities and ongoing research.