Clinics Session summary

IWLR-21, Nov 7, 2018, Canberra, Australia

Clinic Session 1: Data Quality
Erricos C. Pavlis, Justine Y. Woo, Krzysztof Sośnica

Clinic Session 2: Data Productivity
Randall Carman, Robert Sherwood

Clinic Session 3: System Accuracy/Biases
Toshi Otsubo, José Rodríguez

Clinic Session 4: ILRS Procedures
Randy Ricklefs, Christian Schwatke, Kate Stevenson, Julie Horvath

Clinic Session 5: Web Tools and Software
Matt Wilkinson, Michael Steindorfer, Kalvis Salmins, Evan Hoffman, Christopher Moore

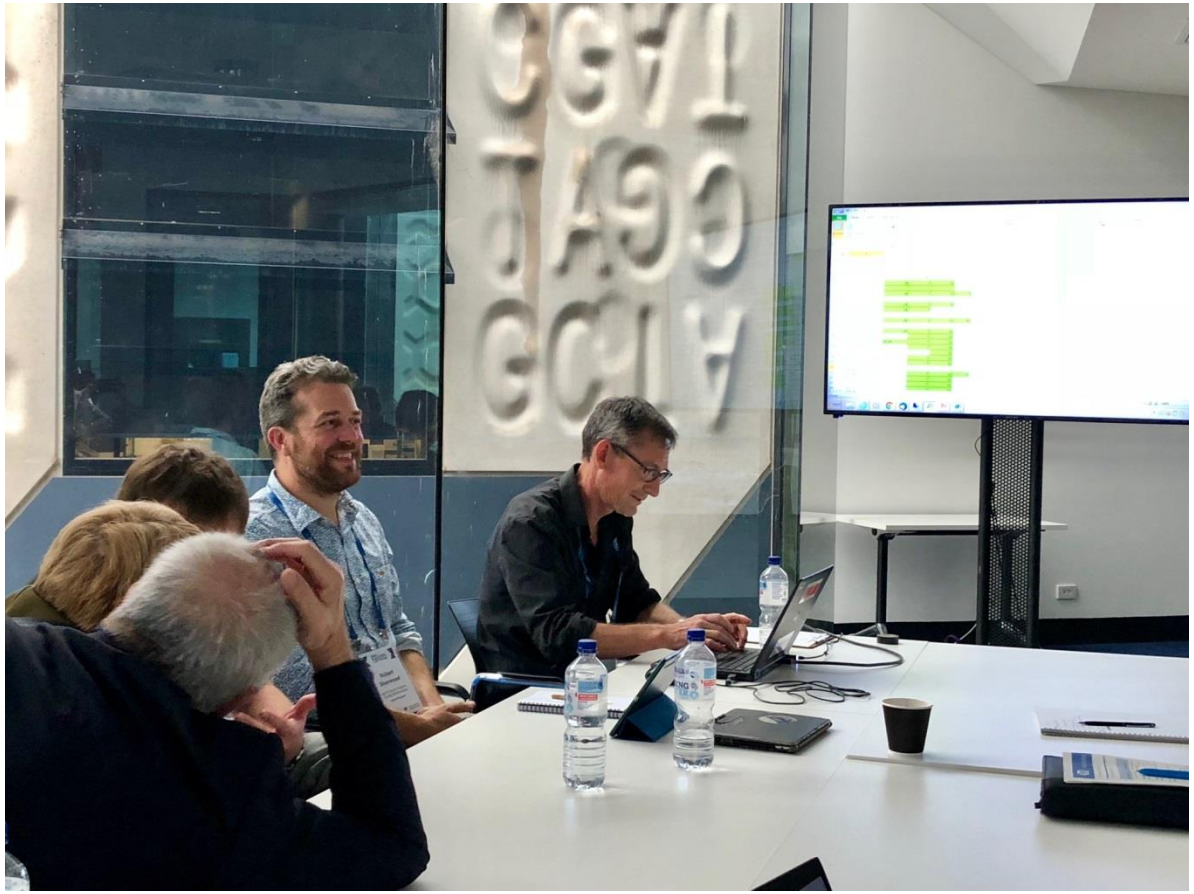
Clinic Session 6: Calibration and Ground Targets
Georg Kirchner, Ulli Schreiber

Clinic Session 1: Data Quality

Erricos C. Pavlis
Justine Y. Woo
Krzysztof Sośnica

- **The clinic had three presentations that provided an overview of web-based tools, presumably useful to stations and analysts:**
  - Tools for QC assessment of the station data and products that were demonstrated:
    - JCET/UMBC web tools for QC, bias monitoring, tracking performance, etc.;
    - GOVUS/WUELS website for SLR @ GNSS targets; and
    - The proposed ILRS CB & QCB station performance website graphic tool
  - The clinic was repeated in four time slots, with the attendees preselected in groups of similar stations (mostly by sub-networks)
  - Not all four sessions were equally well attended probably due to conflicts:
    - Session A that addressed the European network had a limited presence of station reps
    - Session B addressed the Russian network and included reps from their two subnetworks
    - Session C addressed the Asian network and had s single station rep present
    - Session D covered the NASA and Australian networks and was very well attended
  - All of the presented material, with a lot more examples, covering all sites for each of the groups of stations we addressed, will be placed on a server and the link will be sent to the attendees (can be placed on the IWLR website also)

Clinic Session 2: Data Productivity



Randall Carman, Robert Sherwood

Clinic Session 2: Data Productivity - Summary

- Demonstrated well known weakness in the network performance and recapped on reasons to improve.
- We described how many high performing stations actually have several weaknesses BUT they play to their strengths. Many also share their system, but it doesn't really impact their high SLR performance.
- Of course a large proportion of attendees were from stations above the green line!
- Discussed limiting factors at several stations

  Included: Night time only limitation

  Long turn around for repairs due to remoteness of sites in the larger networks.

  HEO weakness due to cultural and fairly "minor" technical issues

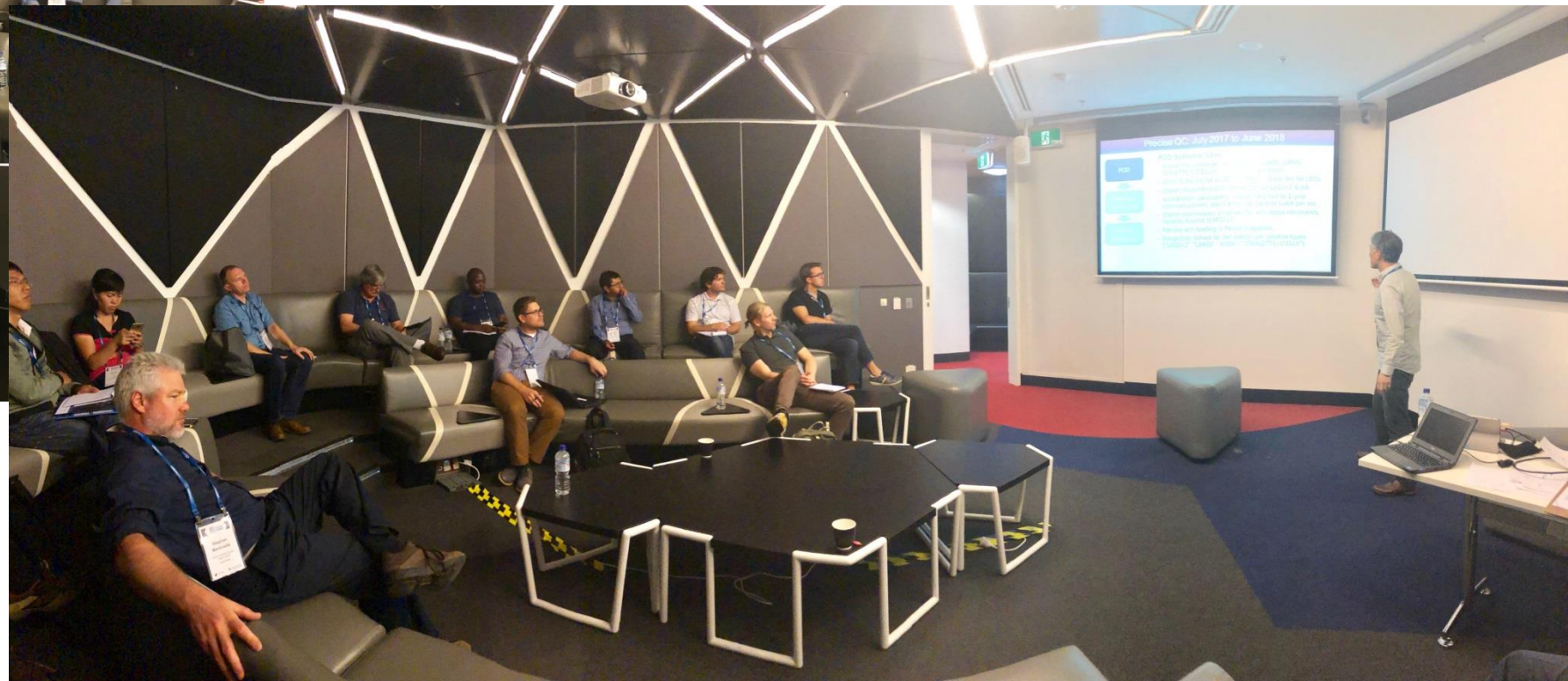
  Staffing/funding limitations

  Weather of course

  Many stations still not capable of daylight ranging
- We found several inconsistencies in site log entries for station operation times.
- Most of the weaker stations who attended had at least some sort of upgrade plan for the next 1-2 years.
- The clinic organisation was great and the format generally worked well with 12-15 attendees, but we would have liked to see more of the weaker stations attend. To this end would recommend that the facilitators maybe get to choose who they want to attend each clinic rather than the attendees.

Clinic Session 3: System Accuracy/Biases

Toshi Otsubo, José Rodríguez



Clinic Session #3: Key issues

Systematic bias

Intensity (~return rate) dependence
Day/night difference
Calibration dependence
Incomplete CRD (missing info, etc.)
and more…

Systematic trend(s) detected?

Discuss with your colleagues.
Test & find the cause.
Try to eliminate/minimize it.

Try to maximize stability.

Clinic Session 4: ILRS Procedures

Randy Ricklefs, Christian Schwatke, Kate Stevenson, Julie Horvath

Clinic Session 4: ILRS Procedures SUMMARY

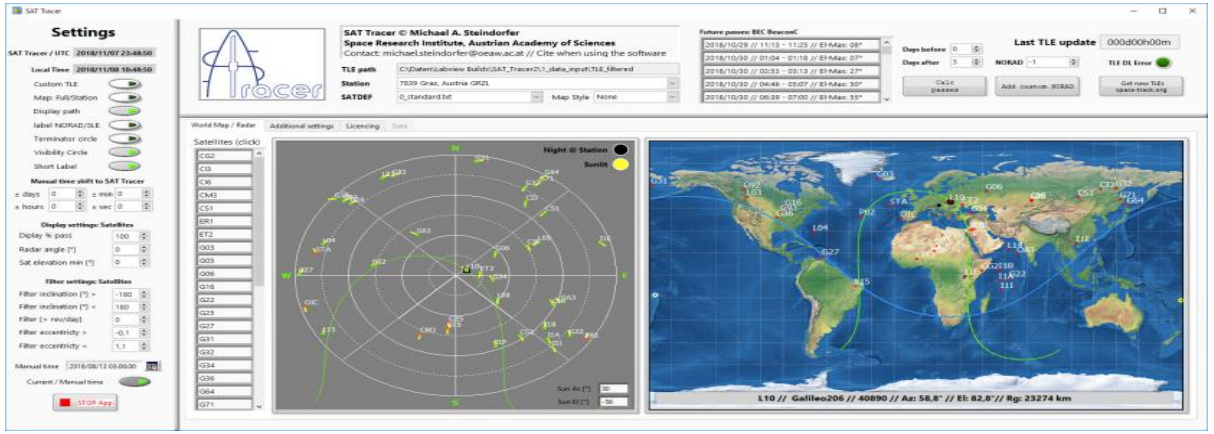
- Facilitators: Randy Ricklefs, Christian Schwatke, Kate Stevenson, Julie Horvath
- Total of about 22 participants over 4 time slots, not all on the lists
- We quickly settled into routine:
  - Introduce the topics and ourselves
  - Asked participants to introduce themselves and what they did in the ILRS
  - Christian presented a demonstration on creating and maintaining their site log and change history log on the EDC website
    - One on one, he was able to help several stations clean up their site logs
  - Kate helped several stations with their data issues
  - Randy helped some participants with CRD and CPF questions
  - Julie added her insight to many of the discussions
- It turned out to be a pleasant experience which worked well
- A couple sessions wrapped early when participants were not involved in the topics being covered.

Clinic Session 5: Web Tools and Software

Matt Wilkinson, Michael Steindorfer,
Kalvis Salmins, Evan Hoffman, Christopher Moore

Clinic session Wrapup, Session 5 Software

- Main Aim: Raise awareness: Available software
  - ILRS homepage -> Technology -> Software
- Topics discussed:
  - NESC forum (signup) // remind people to sign up and use forum
  - Time bias exchange software // Potsdam
  - SAT tracer visualization tool // Graz
  - Database tools // Mt. Stromlo
  - ADS-B aircraft detection software // Herstmonceux
  - Need for automized data cleaning // Herstmonceux
  - Use linux within windows // Riga



Clinic Session 6: Calibration and Ground Targets

Georg Kirchner
Ulli Schreiber

Items addressed during the clinics:

- How often should stations calibrate?
- How do stations record the calibration data?
- How should stations handle different signal strengths from different satellites?
- Observing time bias at stations
- Results from the T2L2 campaign
- Accurately calibrating timing system delays for one-way ranging