Workshop Program

Statistical Interpretation of Age Information, LA-ICP-MS and Beyond

March 6 – 8, 2013
Charleston, SC

Workshop Goals

- Identifying and propagating the limiting uncertainties in LA U-Th-Pb dating
- Reassessing the use of population statistics and the appropriate use of linear regressions and weighted means
- Identifying software processing contributions to improving the 2% (2s) ILC uncertainty limit
- Understanding interpretation limits in assessing ages and uncertainties of complex datasets – the role of geological phenomena
- Isoplot-type functionality for the future

Wednesday - March 6, 2013 (Day 1)

Time	Event
7:30 – 8:30	**Coffee and continental breakfast**
8:30 – 9:10	**Framing the Problems**, *Jan Kosler, Matt Horstwood* Implications from the 2011 LA U-Pb inter-laboratory comparison study (highlighting points from the 3 workshops and those to be discussed in this one)
9:10 – 10:40	**Community Survey - Software Presentations, Part I** (20min presentations x3, 30min discussion at the end of the session) Data Reduction/Uncertainty Propagation Approaches in Existing Software Packages To be addressed in each presentation: - Uncertainty propagation protocol/workflow - Common Pb correction methods, if applicable - Method of inter-element and inter-isotope fractionation correction - Weighted Mean/Linear regression support, if applicable - Rejection criteria - Handling/storage of reference values for normalization - Key differences from other available packages - AgeCalc (George Gehrels) - Glitter II (Norm Pearson)
10:40 –	**Coffee Break**

11:00	
11:00 – 12:30	**Software Presentations, Part II** • Frankfurt approach (Axel Gerdes) • Iolite and VizualAge (Chad Paton & Andrew Kylander Clark) • U-Pb_Redux (Noah McLean)
12:30 – 13:30	**Lunch**
13:30 – 15:00	**Software Presentations, Part III** • SQUID II (Keith Sircombe) • U-Pb Age for R (Luigi Solari) • UranOS (Istvan Dunkl)
15:00 - 15:30	*Simon Jackson/Tonny Thomson* – some observations when comparing software packages: some recommendations for standardisation
15:30 – 16:00	**Coffee**
16:00 - 17:00	**Discussion & Summary of salient points from presentations**
17:00 – 18:00	**Poster Session** Topic: Software packages and other relevant posters
18:30 - 21:00	**Dinner** Join us for dinner at the Francis Marion hotel with guest speaker Dr. Norm Levine

Thursday - March 7, 2013 (Day 2)

Time	Event
7:30 - 8:30	**Coffee and continental breakfast**
8:30 – 10:30	**Recent Advances - Data processing** (25+15min slots, discussion after each presentation/section as appropriate) *Gehrels, Kosler, Horstwood* - What is the minimum amount of information we need about reference materials? What values should we be using? Where/how should this information be archived for community access and use?

Time	Event
	Noah McLean - Log-ratio analysis of compositional data - Analyzing choices in data reduction with respect to uncertainties and MSWD
10:30 – 11:00	**Coffee Break**
11:00 – 12:30	*Noah McLean* - The use and abuse of linear regressions and weighted means with 'sample-standard' bracketed data - How do we fractionation-correct using reference materials with (variable amounts of) Initial Common Pb?
12:30 – 13:30	**Lunch**
13:30 – 15:00	**Recent Advances - Uncertainties and Interpretation** *Pieter Vermeesch* - Kernel density estimation, probability density plots - Multi-dimensional scaling
15:00 – 15:30	**Coffee Break**
15:30 – 17:00	*Matt Horstwood* – Analytical limitations on age uncertainty – solution U/Pb & LA Pb-Pb (c.f. Stern & Amelin study) *George Gehrels* - Geological limitations on age uncertainty
17:00	**End**
18:00 - 19:30	**Dinner**

Friday - March 8, 2013 (Day 3)

Time	Event
7:30 - 8:30	**Coffee and continental breakfast**
8:30 – 10:30	**Future directions for software and data handling in LA-ICP-MS geochronology** (Facilitator-led presentation (15mins) and discussion (30mins)) ***Statistics and data processing***

	Pieter Vermeesch - Are there applications for Bayesian stats in LA U-Pb data interpretation? *Noah McLean* - How do we optimize measurement protocols to collect the most precise data in the least amount of time? *Matt Horstwood* - The time-resolved interpretation of data: mapping, depth profiling, pulse-by-pulse interpretation and the impact of instrumental and analytical setup parameters
10:30 – 11:00	**Coffee Break**
11:00 – 12:30	***Databases and data handling*** *Doug Walker* - The Geochron database - How do we ensure that U-Pb data are archived properly, or at all? - How do we record other geochemical data and imagery with U-Pb data? - database approaches *Jim Bowring* - 'Isoplot 2020', Community requirements
12:30 – 13:30	**Lunch**
13:30 – 14:30	*Andrew Kylander-Clark* - How do we integrate other geochemical data and imagery with U-Pb data? - software approaches *Dirk Frei and George Gehrels* - What is the ultimate software solution for fully automated high-n dataset collection with interactive(?) quality control?
14:30 – 15:30	**Wrap-up** Implementing actions & results Facilitating further community cooperation