

## **Intercalibration Procedures required for GEOTRACES Cruises without Crossover Stations and recommended for cruises with crossover stations**

**These actions are required by all data generators/analysts affiliated with GEOTRACES Cruises before data are considered intercalibrated and can be part of GEOTRACES data products. Exceptions to these policies require approval of the GEOTRACES Standards and Intercalibration Committee.**

1. Cruises without a crossover station are required to sample at least 3 depths in replicate at 2 different stations, at least for all key parameters (defined in Table 2 of the GEOTRACES Science Plan), and samples from these intercalibration depths must be distributed to at least one other laboratory for TEI determinations. Where two labs share the analyses for a parameter on a cruise, this requirement can be satisfied by alternating samples between labs. Exceptions to this requirement can be made if an alternative method to demonstrate intercalibration can be provided and approved by the Standards and Intercalibration Committee. Replicate sampling is recommended for other parameters as well.
2. The primary analysts for each TEI(s) should arrange for other independent laboratories to conduct the analyses of replicate samples. The database of analysts maintained on the GEOTRACES web site (<http://www.geotraces.org/science/geotraces-researchers-analytical-expertise-database>) provides information about qualified analysts.
3. Examine replicate data taking into account (i) Certified Reference Materials (CRM's) data for the two labs involved (e.g. SAFe and /or GEOTRACES, GoShip protocols for nutrient CRMs) and (ii) the use of isotope double spikes where appropriate.
4. Produce a report on the intercalibration process stating what the level of agreement is between data, and whether any changes (e.g., recalibration) were required to one or both datasets/methods to bring data into agreement. This report should be sent to the co-chairs of the GEOTRACES Standards & Intercalibration committee, [sic@geotraces.org](mailto:sic@geotraces.org). In this report please provide all metadata, which should include sample handling details, overall precision and accuracy results, details about calibration and blanking, and subsequent data processing. Recoveries of CRM's or consensus reference materials (e.g., SAFe and /or GEOTRACES) appropriate for selected TEIs should also be reported.

The co-chairs will then send the Report to all members of the Standards & Intercalibration Committee for discussion, and a report will be sent back to the data analyst from the Standards & Intercalibration Committee outlining their assessment:

- (i) Data are deemed to be intercalibrated or
- (ii) More work is needed; advice will be provided on how this may be achieved in consultation with the analysts

Please respond to all e-mail from the Standards & Intercalibration Committee so that we are aware of progress with intercalibration.

Before the next GEOTRACES Intermediate Data Product is created, all data generators/analysts of successfully intercalibrated data will receive an e-mail from

the Data Management Committee requesting permission for their data to be included in that product (although there is no obligation for intercalibrated data to be included in that product).