Europlanet TNA Report

PROJECT LEADER

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Date of TNA visit:	April 25th to April 28th
Host laboratory:	CRPG Nancy

Project Title –

MINERALOGICAL AND CHEMICAL VARIABILITY OF BEDLOAD AND SUSPENDED LOAD

- Report on the outcomes of the TNA visit (approx 1 page)

The ultimate aim of the TNA visit at CRPG Nancy was to investigate hydrodynamic processes during transport and deposition, and specifically how detrital minerals are segregated by size-density and size-shape sorting into distinct size fractions by different transport modes, through determination of sediment chemistry and mineralogy.

In order to quantify size-density and size-shape relationships among detrital minerals entrained on the channel bed or carried in suspension, and to assess hydrodynamic impact on mineralogical and thus chemical composition of bedload sand and suspended-load silt, we had to determine first how various chemical elements are hosted in different detrital minerals.

In the framework of this proposal we had the opportunity to use analytical facilities at CRPG-CNRS Nancy and determined chemical composition of sediment fractions collected from

major river systems draining the Himalayas, including mineral separates prepared by hand picking, as well as stable isotope composition specifically on carbonate and organic detrital components of fifteen to twenty samples. Material treatment and mineral separations have been performed at Milano-Bicocca University. During the stay in Nancy we had also the opportunity to discuss in full detail with various CRPG researchers detrital fluxes and physical processes controlling the distribution of sediments through the water column in the Ganga-Brahmaputra river system.

Please include:

- Publications arising/planned (include conference abstracts etc)

ARTICLES

1. Garzanti, E., Andò, S., France-Lanord, C., Vezzoli, G., Najman, Y., 2010. Mineralogical and chemical variability of fluvial sediments. 1. Bedload sand (Ganga-Brahmaputra, Bangladesh). Earth Planetary Science Letters, in press (approved with minor revision, June 2010).

2. Garzanti, E., Andò, S., France-Lanord, C., Galy, V., Censi, P., Vignola, P., 2010. Mineralogical and chemical variability of fluvial sediments. 2. Suspended-load silt (Ganga-Brahmaputra, Bangladesh). Earth Planetary Science Letters, in press (approved with minor revision, August 2010).

CONFERENCE ABSTRACTS

3. Garzanti E., Andò, S., Malusà M., and Vezzoli G., 2010. Understanding bias in provenance studies. Geophysical Research Abstracts, EGU General Assembly 2010, Vol. 12.

4. Garzanti E., Andò S., France-Lanord C., Galy V., Censi P., Vezzoli G., Vignola P., Setti M., Najman Y., 2010, Mineralogical and chemical variability of fluvial sediments (bedload and suspended load, Ganga-Brahmaputra system). First Workshop on Sediment Generation, Cosenza, 28th June – 3rd July 2010.

5. Garzanti, E.,. Andò, S., 2010. Mineralogy of silt. First Workshop on Sediment Generation, Cosenza, 28th June – 3rd July 2010.

5. Garzanti E., Andò S., France-Lanord C., 2010. Mineralogical and chemical variability of fluvial sediments (bedload and suspended load, Ganges-Brahmaputra system) . Landscapes into rock, William Smith Meeting, Geological Society of London, September 21-23 2010.

- Host approval The host is required to approve the report agreeing it is an accurate account of the research performed.