GEOMAR

Hydrothermal Systems Related to Intraoceanic Arcs

2 day short course presented by:
Dr. Cornel E. J. de Ronde
GNS Science, New Zealand
Werner Petersen Excellence Professor at GEOMAR

Where: GEOMAR, East shore, Lecture Hall 8A-002
When: 7 & 8 October (9:15-12:00 and 14:15-17:00 each day)

This course will include:

- Introduction to deepsea assets, such as ships, ROVs, AUVs, manned submersibles
- Planning of deepsea surveys and maximizing successful cruises
- Volcanological processes associated with volcano formation
- Physical and chemical oceanography and 'plume hunting'
- Characteristics of magmatic-hydrothermal systems, including some spectacular video footage
- Geophysical and geochemical characteristics of water/rock dominated hydrothermal systems, including video footage
- Novel dating and tracer tools based on short-lived radiogenic isotopes
- Propensity for economic ore deposits and the prospectivity of mineral deposits along arcs
- Future research of these systems, including the survey of ancient arcs, recent IODP drilling of Brothers volcano, and tectonics
- Practical exercises, e.g., reducing water column data collected above a hydrothermally active volcano to guide exploration by deep-sea vehicles.

This course is aimed at Master's level students and anybody interested in seafloor hydrothermal systems related to submarine volcanoes along intraoceanic arcs. Over the past 20 years, Cornel de Ronde has been a leading scientists extending research in collaboration with NOAA, WHOI and other organisations to explore these systems, with a focus on sites located along the Kermadec and Mariana arcs. A combination of discovery, scientific endeavour and adventure has meant over 150 submarine volcanoes have been surveyed for their hydrothermal emissions, with a select number visited by various deepsea vehicles.

For free registration, please send an email to:
slange@geomar.de to give us an indication of who will attend

HYDROTHERMAL SYSTEMS RELATED TO INTRAOCEANIC ARCS
SHORT COURSE OCT. 7-8, 2019
Werner Petersen Excellence Professor

Dr. Cornel de Ronde, GNS Science

Schedule: **Please arrive at 9:00 a.m., GEOMAR Lecture Hall, Building 8A-002 and pick up a name tag**
If you have one, please bring your laptop for a group exercise (using Excel)

Monday October 7:

9:15-12:00:

Welcome and opening remarks

–**Part I: Introduction to arcs (~9:30)**

Coffee provided

–**Part II: Plumes (+ exercise) (~10:45)**

Lunch provided for everyone

14:15-17:00:

–**Part III: Magmatic hydrothermal systems (14:15)**

Coffee provided

–**Part IV: Water-rock hydrothermal systems (~15:30)**

Tuesday October 8:

9:15-12:00:

–**Part V: Case study: Kermadec arc (9:15)**

Coffee provided

–**Part VI: Case study: Brothers volcano (~10:45)**

Lunch provided for everyone

14:15-17:00:

–**Part VII: Brothers chimneys/dating (~14:15)**

Coffee provided

–**Part VIII: Future directions/animals/discussion (~15:30)**

Please join us afterwards for refreshments!