Fall 2013

Julie Bryce Associate Professor of Geochemistry travels to Italy

Julie G. Bryce
University of New Hampshire, julie.bryce@unh.edu

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Associate Professor of Geochemistry - Italy

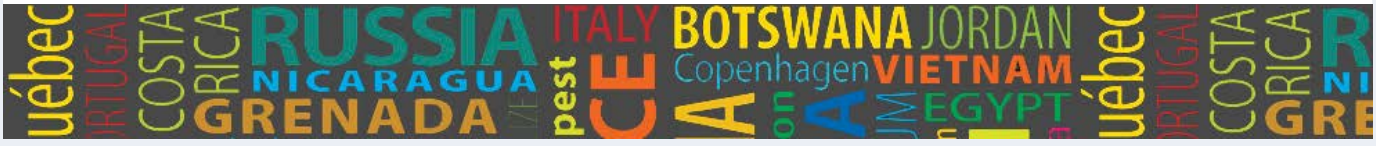
Thanks in part to the support of a CIE International Development award I was able to visit colleagues at the University of Ferrara in advance of a meeting of geochemists in nearby Florence in August 2013. I first met the Ferrara-based scientists at a geochemical meeting four years prior and learned of their extensive collection of mantle xenoliths from several volcanic provinces where I have worked the last two decades. Thanks in large part to international development grants and being based in nearby France for my sabbatical I have been able to visit Ferrara three times now. Our interactions are not only limited to those visits. The UNH geochemistry group has hosted three Ph.D. students and one postdoctoral scientist from Ferrara, and two UNH students, NRESS Ph.D. student Ms. Kim Aviado and Ms. Elizabeth Pettitt (BS, Geology, expected in 2015), are visiting Ferrara this summer working with colleagues.

Elizabeth Pettitt '15 sampling lavas in the Dolomites (Photo credit: Ms. Kimberly Aviado, NRESS Ph.D. student)

The perfect jet lag eliminator and kickstarter for paper writing with colleagues in Ferrara (must be ordered before 11 AM)

The famous Castello Estense in Ferrara, Italy

My first task in Ferrara was to get rid of jet lag, best handled with a savory dinner of the famous *cappellacci di zucca* and (after the early morning wakeup) a cappuccino. I learned on my first visit to Ferrara that one does not apparently have cappuccino after 11 AM (a more generous cutoff time than in other places that have earlier cappuccino cutoff times). Excellent cuisine and lessons in cappuccino drinking aside, my main motivation to visit my colleagues in Ferrara centers around one word: mantle. Earth's mantle is its large rocky layer that extends beneath the crust on which we stand down to Earth's metallic core. The group I visit in Ferrara are world experts in studying xenoliths, "strange rocks" brought up in lava flows, plucked from deep part of Earth's rocky lithosphere as magma, "underground lava," rises to the surface. These samples provide important information about the geological and chemical processes that long ago formed Earth's lithosphere, the rocky shell that extends from Earth's surface, through the crust and includes part of the underlying mantle that makes up the jigsaw plate pieces that participate in plate tectonics. Xenoliths also bear testimony that can be used to reconstruct more recent processes that have led to volcanism in volcanically active regions. During my visit in August we finalized and submitted one manuscript on our earlier studies and continued discussions and sketched out a manuscript on the results of work Mr. Paolo Sgualdo, a University of Ferrara Ph.D. student, carried out in the UNH geochemistry lab. The trip also provided a means to initiate new projects to gain insight into processes driving volcanism. Ms. Aviado is working on a new project to elucidate mechanisms of rifting in East Africa, and thanks to the support of an IROP from the Hamel Center, Ms. Pettitt is taking the lead on a new project on lavas and xenoliths in the Veneto Volcanic Province, a region of volcanism extending to the backside of the mountains framing Lago di Garda. We are excited to get Ms. Aviado and Ms. Pettitt back to UNH and study their samples on a new instrument we are installing this summer, host our next Ferrara visitor this fall, revise Mr. Sgualdo's submitted manuscript and continue our collaborations exchanging future excellent UNH and University of Ferrara students.



Hood House • 89 Main Street • Durham, NH 03824 • Ph 603-862-2398 • Fax 603-862-0169
Thompson Hall • 105 Main Street • Durham, NH 03824 • Ph 603-862-1288 • Fax 603-862-0844
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