
Woods Hole Oceanographic Institution
Biology Department Seminar



Thursday, August 18, 2016
Redfield Auditorium – 12:00 Noon

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Active volcanoes in Antarctica contrast with the predominately icy landscape. They harbor unique conditions capable to select an extreme range of microbial adaptations. Deception Island is located in the South Shetland Islands and differs from other Antarctic volcanoes specially by its higher temperatures and marine influence. We collected sediment samples associated to active fumaroles and glaciers on two geothermal sites, with temperatures ranging from 0°C to 98°C. Shotgun metagenomics were used to understand how geothermal activity drives taxonomic and functional diversity of microbial communities. The taxonomic and functional profile shows that samples were assembled according to temperature and geochemical variations. As temperature increases to values above 90°C, the communities are mainly dominated by hyperthermophilic archaea related to sulfur metabolism and by genes related to oxidative stress, base excision repair, recombination and hyperthermophilic adaptation. It differs strongly in taxonomic and function from fumaroles below 90°C and glaciers. Genes related with stress response were abundant in all samples, which reflects the mosaic of environmental changes produced by volcanic activity in Deception.