

THE 2009 ASTROBIOLOGY GRADUATE STUDENT CONFERENCE (ABGRADCON). S. M. Som^{1,6}, R. Anderson^{2,6}, M. Antonio⁵, M. C. Cash^{1,6}, M. Claire^{3,6}, N. Cowan^{3,6}, M. Ewert^{2,6}, A. Goldman^{4,6}, D. Snowden^{1,6}, E. Stüeken^{1,6}, ¹Department of Earth and Space Sciences, University of Washington, Seattle, WA 98105 – USA san-joy@u.washington.edu, ²School of Oceanography, University of Washington, Seattle, WA 98105 – USA ³Department of Astronomy, University of Washington, Seattle, WA 98105 – USA ⁴Department of Microbiology, University of Washington, Seattle, WA 98105 – USA, ⁵School of Earth and Environmental Sciences, Washington State University, Pullman, WA 99164 – USA ⁶Astrobiology Program, University of Washington, Seattle, WA 98105 – USA

Introduction: The 2009 Astrobiology Graduate Student Conference was held at the University of Washington July 17 – 20 2009. It brought together 67 participants from 8 different countries and 34 different universities. A total 39 talks and 28 posters were presented in a unique atmosphere where collaboration and discussion were emphasized. AbGradCon was also streamed live in the virtual world of Second Life, where online participants could view the posters, interact with the participants and watch the talks live in a specially constructed conference venue (Fig. 1). Facebook and Twitter were also used to broadcast AbGradCon beyond the UW campus.



Fig. 1: The AbGradCon Virtual conference center

AbGradCon: The Astrobiology Graduate Student Conference (AbGradCon) is a grass-roots effort that has been undertaken by 4 previous groups of early-career astrobiologists since 2004, with significant support from the NASA Astrobiology Institute (NAI). The primary objective of AbGradCon is to bring together in a unique setting the early-career astrobiologists (graduate students and post-doctoral fellows within 2 years of finishing their Ph.D.) who will lead astrobiology research in the years to come. The conference is unique in that it is a student-led meeting, from the organization to the presentations. The spirit of AbGradCon supports NAI's mission to carry out, support and catalyze collaborative, interdisciplinary research, train the next generation of astrobiology researchers, provide scientific and technical leadership on astrobiology investigations for current and future space missions, and explore new approaches using modern information

technology to conduct interdisciplinary and collaborative research amongst widely-distributed investigators.

AbGradCon 2009: AbGradCon 2009 was held entirely on the University of Washington – Seattle campus to minimize costs and simplify logistics. Participants were lodged in the University dorms and auditoriums were used for the venue. Prior to the conference, participants were given a booklet with all the attendee's pictures and biography, which allowed attendees to get acquainted with each other prior to the conference. Talks were set to 12 mins, with 8 mins of Q&A, allowing more time for conversation than at a typical conference. The poster session was held in the Mary Gates atrium, with the Second Life poster session happening at the same time and projected on a giant screen (Fig. 2). The first day ended in a catered banquet followed by a keynote presentation by Dr. Monika Kress of San Jose State University.



Fig. 2. The photo on the left shows participants in Seattle pointing to Second Life. The image on the right is a snapshot taken in Second Life, showing avatars and the overhead JumboTron with real time video of students in Seattle.

The second day continued with more presentations, and concluded with an orientation on the upcoming field trip. During the evening, a public event entitled "Gaia vs. Medea: Battle of the Goddesses" was organized. Dr. Peter Ward of the University of Washington and Dr. Jim Kasting of Pennsylvania State University debated the merits of the Gaia and Medea hypotheses. Dr. Shawn Domagal-Goldman (UW VPL) moderated the event. The debate was attended by ~ 200 people from the Seattle community, and it was immediately followed by an "ask an astrobiologist" session, where

guests were invited to converse with AbGradCon participants over snacks and drinks.

The field trip to the Mt. Saint Helens volcanic monument was the highlight of the third day. AbGradCon participants were given the choice of several hikes of varying difficulty. Special permits were obtained to hike up the volcanic edifice inside the devastated area. Mt. Saint Helens provides a glorious venue to discuss astrobiologically relevant topics.

The morning of the fourth day, a large room was obtained and no scheduled event planned to allow collaborations to take place. High-school students were invited and witnessed AbGradCon participants perform the “Astrobiology Rap”, led by AbGradCon attendee and rapper Jonathan Chase.

Web 2.0 presence: Beyond Facebook and Twitter, AbGradCon was held in parallel within the virtual world of Second Life, allowing “Mixed-Reality broadcasting.” Mixed-Reality events are a novel method of merging real and virtual world environments through the internet to create a shared experience of an activity. Event participants who are not co-located can contribute equally to a real-time activity using multi-media broadcast and networking tools.

A uniquely designed virtual-world was created for AbGradCon. It consisted of a virtual poster-session, where all the posters of the participants were loaded, and an amphitheater, where avatars were able to view the talks live (Fig. 3). People from all over the world were able to attend the meeting, without contributing to their yearly carbon footprint. While novel in its scope and ambition, this form of mixed-reality broadcasting has precedence. The Next Generation Exploration Conference held at NASA Ames in February 2008 was the first to implement Mixed-Reality, and the lessons learned were applied to make AbGradCon presence in the virtual world a bigger success.



Fig 3: The Second Life AbGradCon Amphitheater

Because talks and the poster session were taking place at the same time in Seattle and Second Life (Fig. 4), we set up visual “portals” to allow participants in both worlds to see each other. In Second Life, live video and audio from the Seattle meeting room presentations were streamed into an amphitheatre and during the poster session video was shown overhead on a “Jum-

boTron.” In a similar way, in Seattle images from Second Life were projected on a large screen during the poster session and in the meeting rooms where talks were held.



Fig. 4: Attending the poster session virtually.

The Research Focus Group (RFG): The Astrobiology Research Focus Group (RFG) Workshop was a new early-career astrobiologist event held for the first time in 2009, which was organizationally distinct from, but very closely linked to, AbGradCon. It grew out of discussions between participants at AbGradCons in earlier years, and has a similar strategic objective. The specific goals of the RFG were to enhance the ability of early-career astrobiologists to think in a genuinely interdisciplinary way when generating ideas for new research, as well as to improve their skills in writing effective grant proposals and in critically reviewing proposals made by others.

It was an intensive two-day simulation of a grant submission and funding process. Participants were put into groups of 3 or 4 people, all with different specialty areas and from different institutions, and had to write an interdisciplinary astrobiological research proposal together. Each group presented their proposal orally to the entire workshop, which then discussed it. The participating groups also had to provide a written review of the proposals from two other groups. Finally, at the end of the workshop, an anonymous ballot was held to determine which proposals were viewed as the best by the RFG participants.



Fig. 4: AbGradCon '09 participants in front of Drumheller fountain at UW

<http://tinyurl.com/abgradcon09>