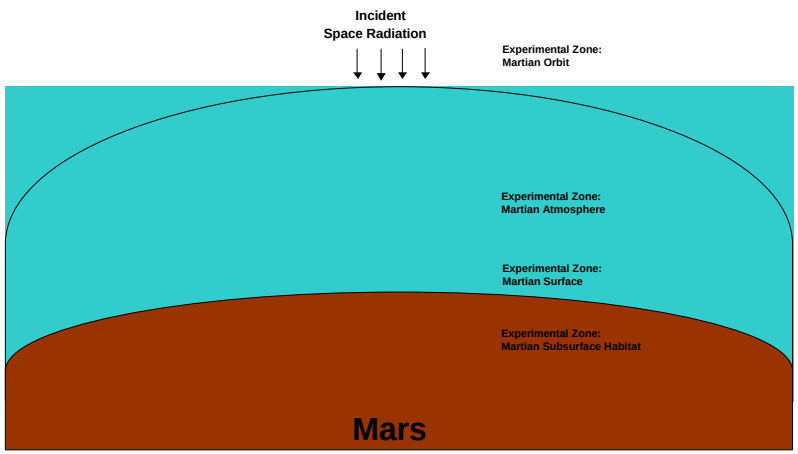

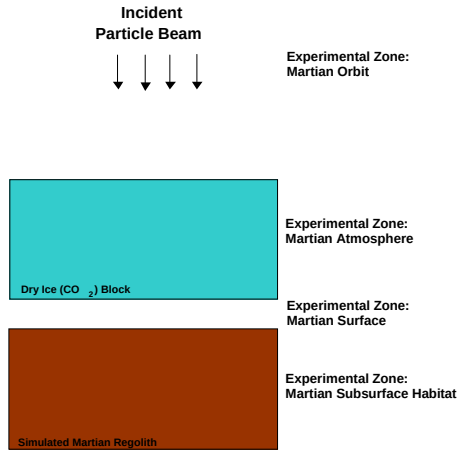

- We have proposed to design and construct two (Martian and Lunar) systems called: ***B***ioastronautics ***E***xperimental ***R***esearch ***T***estbeds for ***E***nvironmental ***R***adiation ***N***ostrum ***I***nvestigations and ***E***ducation (**BERT** and **ERNIE**)
- We have finished designing and begun constructing the Lunar Testbed (BERT)
- Once the construction is finished, the space radiation dosimetry instruments (and the associated data acquisition systems) will be integrated into BERT
- After the dosimetry instrumentation has been integrated into BERT, we will perform experiments to characterize the radiation field present in all of the zones (see figure above)
- Once we are successful in all of these goals, BERT we will be ready to be utilized in experiments in collaboration with the other CRESSE subgroups.

Milestones and Highlights

- Worked closely with Dr. Zhou and his 2 students and 1 post-doc during the process of choosing regolith and also their initial radiation training
- Completed the design of BERT and began construction
- Initial dosimetry components have been decided upon and ordered (or are in the process of being ordered)
- Currently debating improvements in the analysis and visualization procedures for the data stream produced by our current (and planned) space radiation dosimeters
- We have secure lab space and I have a laptop and a PVAMU email address (bbgersey@pvamu.edu)!

Publications

- "Biological effects of high-energy neutrons measured in vivo using a vertebrate (Oryzias laptipes) model", W. Kuhne, B. Gersey, R. Wilkins, H. Wu, S. Wender, and W. Dynon, accepted for publication in Journal of Radiation Research in September 2009
- K. Rojdev, W. Atwell, R. Wilkins, B. Gersey and F. Badavi, "Evaluation of Multi-functional Materials for Deep Space Radiation Shielding", National Space and Missile Symposium, Henderson, NV, 22-26 June 2009. *NOTE*: This was both a presentation (by the student Kristina Rojdev) and also a conference paper
- **Assessing Radiation Hazards for the Exploration of Mars** S.B. Guetersloh, M. VanBaalen, C. Zeitlin, B. Gersey, Chapter 7 in IAA publication. Publication this summer
- Genetic algorithm paper is ready to go
- Abstracts will be submitted next week for 6 graduate students for the NSBE conference to be held in February 2010
- Other publications in process…

Plans for the Coming 6 -12 Months

- 25% time to analyze data and write publications
- Continue to improve upon the capabilities of BERT and ERNIE (both physical design and dosimetry)
- One experiment each planned at LANSCE, NSRL and Loma Linda facilities
- Further radiation dosimetry instrumentation (and the associated data acquisition systems) will be integrated into BERT and ERNIE as they are acquired by the CRESSE
- Further education and outreach planned
- Support our current graduate students