POSTER SESSIONS
Monday, November 13, 2017
and Thursday, November 16, 2017

5:00–6:30 p.m. UWCC Grand Ballroom

DEFINITIONS OF HABITABILITY POSTERS

Airapetian V. S. Glocer A. Khazanov G. Danchi W.
Space Weather Affected Habitable Zones **[#4076]**
Our global models show that atmospheres of terrestrial type exoplanets around M dwarfs are vulnerable to high XUV fluxes and magnetized winds causing atmospheric loss rate of O and N, which will make exoplanets uninhabitable within 10-100 Myr.

Chandler M. A. Sohl L. E. Jonas J. A. Carter D. O.
3-D Climate Modeling of the Cretaceous: Capacity and Conundrums That Reflect on the Promise of Simulating Habitable Exoplanets **[#4082]**
3-D GCM simulations of Paleo-Earth climates such as the mid-Cretaceous permit exploration of the dynamics impacting global or regional habitability of HZ planets, as well as a means to evaluate GCM performance and suggest lines of inquiry.

Checlair J. Abbot D. S.
A Test for the Habitable Zone Concept **[#4147]**
Traditional habitable zone theory assumes that the silicate-weathering feedback regulates the atmospheric CO_2 of planets within the habitable zone. We outline a test for this prediction by using a statistical approach on many planets with future observing facilities.

Del Genio A. D. Way M. J. Amundsen D. S. Aleinov I. Kelley M. Kiang N. Y.
Equilibrium Temperatures and Albedos for Habitable M Star Planets in a Coupled Atmosphere-Ocean General Circulation Model **[#4029]**
3-D exoplanet climate modeling shows that equilibrium temperature assessments of the habitable zone should account for the higher albedos of slowly rotating planets inside the tidal locking radius and the lower albedos of planets orbiting M stars.

Dong C. F. Lee Y. Ma Y. J. Bougher S. W. Luhmann J. G. Jakosky B. M. Curry S. M. Brain D. A. Toth G. Nagy A. F.
Modeling of Ion and Photochemical Losses to Space Over the Martian History: Implications for Exoplanetary Climate Evolution and Habitability **[#4023]**
This study informs our understanding of the long-term evolution of the Martian climate due to atmospheric losses to space, and has implications for analogous change on exoplanets. Thus, it offers fresh insights concerning the habitability of exoplanets.

Hall A. Acker-Moorehead M. Onyilagha J.
Origin of Life: Pathways of the 20 Standard Amino Acids of the Genetic Code **[#4157]**
How nature used four nucleotides to build its proteins and form genetic code is intriguing. Stereochemical, Coevolution, and Adaptive theories have been propounded. We updated biosynthesis pathways and give insight into ancient evolutionary events.

Hayworth B. P. Payne R. C. Kasting J. F.
The Effect of New Collision-Induced Absorption Coefficients on the Early Mars Limit Cycle Hypothesis **[#4125]**
Updating the Limit Cycling (LC) Model for early Mars with new absorption coefficients to test for changes to LC behavior and to potentially lower needed concentrations of greenhouse gases. Thought will be given to the effect of LC on habitability.

Hinkel N. R.
Avoiding 'The Boy Who Cried Wolf' In Exoplanet Habitability **[#4105]**
I will discuss the short-comings in the current definition of the habitable zone as well as how to move forward, taking into account both the physical and chemical relationships between a star and its planet.

Kane S. R. Kopparapu R. K. Domagal-Goldman S. D.
A Catalog of Kepler Habitable Zone Exoplanet Candidates **[#4014]**
This presentation will describe the highlights of the HZ catalog and the plans for further validation of HZ candidates and follow-up studies.

Marounina N. Rogers L. A. Kempton E.
Constraining the Habitable Zone Boundaries for Water World Exoplanets **[#4135]**
We use coupled models of planet interiors, clathrate formation, liquid-gas equilibrium, and atmospheric radiative transfer to constrain the atmospheric abundance of CO_2 and corresponding habitable zone boundaries for water-rich exoplanets.

Mason P. A.
The Large-Scale Structure of Habitability in the Universe **[#4149]**
The emergence of life as we know it relies on several factors. Over time, galactic disks not only allowed for the concentration of elements, but the magnetized galactic wind of disk galaxies also provided protection.

Soto A.
How Ocean-Land Fraction and Distribution Affects Habitable Conditions on Earth-Like Planets **[#4027]**
We investigate how ocean-land fraction and distribution affects the creation of habitable conditions on the surface of Earth-like exoplanets by using a general circulation model to simulate a range of ocean-land fractions as well as distributions.

Tasker E. J. Tan J. Heng K. Kane S. Spiegel D.
We Need to Change How We Discuss Habitability **[#4042]**
Metrics are used to rank planets for follow-up studies. However, the results are frequently over-extended to suggest that we can quantitatively assess a planet's capacity for supporting life. Such misrepresentation risks serious damage to the field.

Turbet M. Forget F. Leconte J. Selsis F. Bolmont E.
Habitability and Observability of Proxima Cen and TRAPPIST-1 Planetary Systems **[#4016]**
We use sophisticated 3-D numerical climate models to explore the habitability of two nearby planetary systems: Proxima Cen and TRAPPIST-1. Then we produce synthetic observables to prepare future observations with JWST and ELT-class telescopes.

Turbet M. Forget F. Leconte J. Tobie G. Charnay B. Selsis F. Bolmont E.
Glaciation Escape on Earth-Like Planets Limited by CO_2 Condensation **[#4017]**
We discuss the ability of Earth-like planets to escape from episodes of complete glaciation (i.e. snowball episodes) through volcanic CO_2 greenhouse warming. We show that CO_2 polar condensation prevents distant planets to escape glaciation.

Yang J. Ding F. Ramirez R. M. Peltier W. R. Hu Y. Liu Y.
Abrupt Climate Transition of Icy Worlds from Snowball to Moist or Runaway Greenhouse **[#4007]**
Icy planetary bodies with low concentrations of greenhouse gases may transition directly to a moist or runaway greenhouse without passing through a habitable Earth-like state.

Young P. A. Truitt A.
Constraining the Habitability Histories of Planets **[#4040]**
We present a method and example for calculating the probability that a planet at a given distance from its star has been habitable for a specified amount of time, even without a known age or composition for the host star.