



New Modelling Results on the Inner Boundary of the Habitable Zone

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To develop life on a terrestrial planet the presence of liquid water on its surface is a commonly accepted, fundamental requirement. Based on this condition the Habitable Zone (HZ) is defined as the region of possible orbits around a star where liquid water exists on the surface of such a planet. In this study we present a self-consistent determination of the inner HZ boundary. This is taken to be the limit where an Earth-like planet would lose its entire water content within the planet's lifetime. To investigate this inner boundary a one-dimensional radiative-convective model of the atmosphere is used. Our approach involves the step-by-step increase of the incoming stellar flux and the subsequent calculation of the resulting changes in the atmospheric composition and the radiative properties in a consistent manner. Therefore, the infrared radiative transfer scheme was improved to be suitable for such high temperature and pressure conditions. The new modelling results are presented for various planetary and atmospheric conditions.