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Influence of Atmospheric Chemistry on the Inner Boundary of the Habitable Zone

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Should terrestrial extrasolar planets be found, it is an interesting question to ask if they may harbour life. A requirement to develop life on a planet is the presence of liquid water on the surface of a planet. Based on this condition the Habitable Zone (HZ) is defined as the region around a star where liquid water is possible on the surface of a planet. The inner boundary of the HZ is defined by the water loss limit where an earthlike planet would lose all of its oceans. In previous studies the boundary was investigated with radiative-convective models only. In our study we incorporate additionally the feedback of atmospheric chemistry on the temperature profiles of the atmosphere to determine its influence on the inner boundary of the HZ. We are using a one dimensional radiative-convective model coupled with a photochemical model. Different kinds of stars are used as the energy source.