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The impact of Jupiter-like planets on the potential habitability of exoEarths (invited talk)

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In the coming decades, the search for life beyond the Solar system will begin in earnest. But how should we choose the best targets for that search? In order to maximise our chances of success, it is important to consider the many and various factors that could render one planet more or less habitable than another. In this talk, I will describe how dynamical simulations can reveal the role that giant planets like Jupiter play in controlling the impact regimes and long-term climate stability of Earth-like planets. By using the Solar system as a template, I demonstrate how changes to the mass or orbit of a giant Jupiter-like planet can significantly alter the potential habitability of any exoEarths that orbit the same star, revealing in the process that the answer to the question “Jupiter - Friend or Foe?” is “it’s complicated”.

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Session Classification: Formation of gaseous giant planets and their impact on inner low-mass planets in the habitable zone: from solar system to exoplanetary systems