
Planetary Atmospheres: Solar System / Exoplanet Connections

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The solar system presents a range of planetary atmospheres, from the “primary” atmospheres accreted from the solar nebula, found for the giant planets, to the thinner “secondary atmospheres” outgassed from the planetary interior, for the terrestrial planets. A range of telescope observations and space missions have shown us a huge diversity in atmospheric composition, temperature structure, and chemistry. The exoplanet context shows us that these already diverse atmospheres are merely a subset of the phase space of planetary atmospheres that nature provides us to study. In this talk I will review the state of the art in our knowledge in the origin and evolution of solar system atmospheres, informed by ESA and NASA space missions, while making connections to the exoplanet atmospheres frontier that is being newly explored with JWST and large ground-based telescopes.