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Venus as an Exoplanet: Effect of varying stellar, orbital, planetary and atmospheric properties upon composition, habitability and detectability

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The newly selected Venus missions EnVISION and VERITAS (Venus Emissivity, Radio Science, InSAR, Topography, and Spectroscopy) offer new opportunities for studying Venus but will also contribute to furthering our knowledge of Venus as an exoplanet. Hot rocky planets are favored targets due to generally more frequent transits than cooler Earth-like objects. In this work we simulate Venus as an exoplanet varying stellar, orbital, planetary and atmospheric parameters and study the effect upon atmospheric composition, climate and spectral detectability with the JWST (James Webb Space Telescope), the ELT (Extremely Large Telescope) and the LIFE (Large Interferometer For Exoplanets) telescope.

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