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# Self-sustaining water atmospheres on magma planets and their observability

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With hundreds of hot-rocky exoplanets discovered and a dozen of good targets for JWST characterisation, understanding the links between the interior and atmospheres of these worlds and what we can learn from the observations is more relevant than ever.

Hot-rocky exoplanets with a significant volatile atmosphere are thought to be able to support long-term global magma oceans. Recent interior modelling work has shown that if the surface temperature of these planets is above 2000K, the mantle is likely to be molten down to the core-mantle boundary. This is in stark contrast to the fact that the mantle is almost entirely solid for surface temperatures below 1900K. This has considerable implications for the storage of water in the mantle of these planets and the amounts that are expected to be found in their atmospheres. Within a margin of about 100 K, the water storage capacity of the mantle changes by up to three orders of magnitude.

In this presentation, we will show how planets with long-term magma oceans are expected to evolve, and which are the consequences of such evolution on their atmospheres. We will also discuss the implications of this in the exoplanet population and in the observability of such worlds.