**Observability of young telluric planets at a magma ocean stage**

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We present here some of the first results of a coupled magma ocean-atmosphere model designed to study the first 10 million years of a generic telluric planet, taking into account :
* Fractionation of $H_2O$ and $CO_2$ between the magma ocean and the atmosphere * Radioactive decay in the interior
* Blanketing and greenhouse effect through a 1D radiative-convective atmosphere (in the thermal IR)
* Secular cooling of the magma ocean-atmosphere system
* Possible condensation of a $H_2O$ ocean

Here, we will emphasize the study of the outgoing thermal radiation from an exoplanetary point of view. In particular, our results suggest that after at most $10^5$ years (depending on the location of the planet within the habitable zone), these planets have cooled enough (surface temperature below about 2000 K) so that their thick atmosphere makes them hardly distinguishable from much more evolved, 'wet Venus'-like exoplanets. We shall more specifically focus on the various uncertainties on the limit net outgoing thermal IR flux at low enough surface temperatures, called 'Nakajima's limit' in the context of runaway greenhouse studies.

References :
* Lebrun et al., JGR (2013)
* Marcq, JGR (2012)
* Kasting, Icarus (1988)