

EXOPLANETS

Under a quiet red sky

Astron. Astrophys. (in the press); preprint at <https://arxiv.org/abs/1711.06177>

M-dwarf stars have become a prime target for exoplanetary hunting, due to their favourable conditions for the detection of rocky exoplanets within the temperate zone of the system. Many such systems have been discovered recently, including the popular Proxima Centauri and TRAPPIST-1. The actual habitability of these systems is, however, jeopardized by the high stellar activity usually displayed by M dwarfs, who bathe their planets in a flux of highly energetic particles. Xavier Bonfils and colleagues may have squared the circle with their finding of a rocky planet around a low-activity M dwarf, Ross 128.

Ross 128 b has several attractive features. It is in the immediate neighbourhood of the Sun, as Ross 128 is just 3.34 pc away. It orbits at the edge of the 'habitable zone' (falling just inside or just outside depending on the definition of habitable zone) and has an equilibrium temperature probably quite close to Earth's. And above all, Ross 128's limited flaring activity makes it much more promising for habitability perspectives than other planets around M dwarfs. Due to its proximity to us and its potential to be Earth-like, Ross 128 b has immediately been projected very high in the list of planets to monitor in the search for extraterrestrial life. Unfortunately, observational limitations will make further characterization difficult. The planet does not transit, thus studying its atmosphere will be problematic. It is also not favourable for follow-up observations with the James Webb Space Telescope. Instead, as Bonfils et al. suggest, Ross 128 b will make a perfect target for the upcoming Extremely Large Telescopes.

Luca Maltagliati

Published online: 19 December 2017
<https://doi.org/10.1038/s41550-017-0369-9>