

The EChO long-term planning tool

Ignasi Ribas, Alvaro Garcia-Piquer, Josep Colomé – Institut de Ciències de l'Espai, Barcelona, Spain

EChO will study the atmospheres of a diverse sample of over 100 exoplanets, through primary transits, occultation and orbital phase measurements. Each target will be observed at least once during the mission lifetime, and in many cases multiple times, subject to requirements on signal-to-noise. Efficient scheduling of the very large number of individual, time-critical transit events which are further constrained by mission-level constraints such as data down-links, satellite stationkeeping and target visibility is key to the success of the mission, and a task that cannot be done by hand. In this talk we present the work to-date on the long term mission planning tool for EChO. Designed to optimise mission planning, the tool can be used to establish the long-term mission plan, to determine mission efficiency and sample completeness, as well as to guide observing strategy in order to maximise the scientific output of EChO. We illustrate the scope of the tool through presentation of the results of the mission planning of two samples - (a) the mission reference sample, a hypothetical sample which covers the "maximal" parameter space that the EChO mission will cover as well as samples drawn from, and (b) a sample drawn from known targets that can be observed with EChO.