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The Sun, stars and planets (Christiaan Huygens Medal Lecture)

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Using stellar occultations as a tool to probe the planetary atmospheres has resulted in significant contributions to the exploration of our solar system. The technique of solar occultation has been well known for decades, but because of stars being so faint objects with respect to the Sun this technique was not very popular in the 70's. While fostering the idea of stellar occultations, I tried to avoid the unfortunate fate of Giordano Bruno, who was burned to death on February 17, 1600: he had dared to declare that the stars were objects like the sun, only much more remote.

This talk will illustrate some results obtained by the star occultation technique by one scientific example on each of the three planets which are equipped with a stellar occultation instrument: GOMOS on ENVISAT (ozone monitoring), SPICAM on board Mars Express (temperature profiles), and SPICAV on Venus Express (SO2). I will also talk about Cristiaan Huygens, the first to discuss (according to the historical review of Pierre Connes) the problem of extra-solar planets in modern scientific terms which are still valid to day. Finally, I will address the threat to the planet Earth posed by Mankind, with some discussions about demography and geo-engineering.