

## Professor Paula Koelemeijer - Fowler Award (G)

Professor Paula Koelemeijer is an outstanding scientist whose work has significantly advanced our understanding of the Earth's deep interior, particularly the structure and dynamics of the lower mantle.

The lower mantle is one of the most enigmatic regions of our planet, holding clues about the Earth's formation and thermal evolution. Professor Koelemeijer is especially renowned for her expertise in normal modes, some of the most complex seismic signals used to probe Earth's interior.

Notably, she made the first robust observations of core-mantle boundary Stoneley modes - amongst the most elusive seismic phenomena. Using these observations, Professor Koelemeijer challenged the prevailing assumption that large areas of the mantle that are observed to have low velocity, are also dense.

This sparked renewed debate about whether convection in the mantle is driven mainly by thermal versus thermochemical processes - an issue with major implications for the cooling of Earth's core and the planet's thermal history.

Professor Koelemeijer also leads developments to assess uncertainty about our knowledge of the Earth's interior, in order to better ascribe observations either to temperature or compositionally driven effects. She served for years as an editor for the open access journal *Seismica* and *Geophysical Journal International*, commits to frequent public engagement in the media, including on the BBC, podcasts, articles and hands-on teaching tools such as 3D-printed models.

She is a rising star, a leading scientist, and a role model for the next generation.