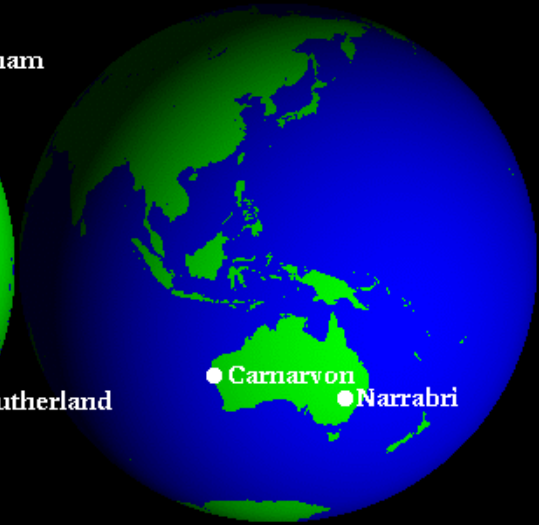


BiSON

Birmingham Solar-Oscillations Network



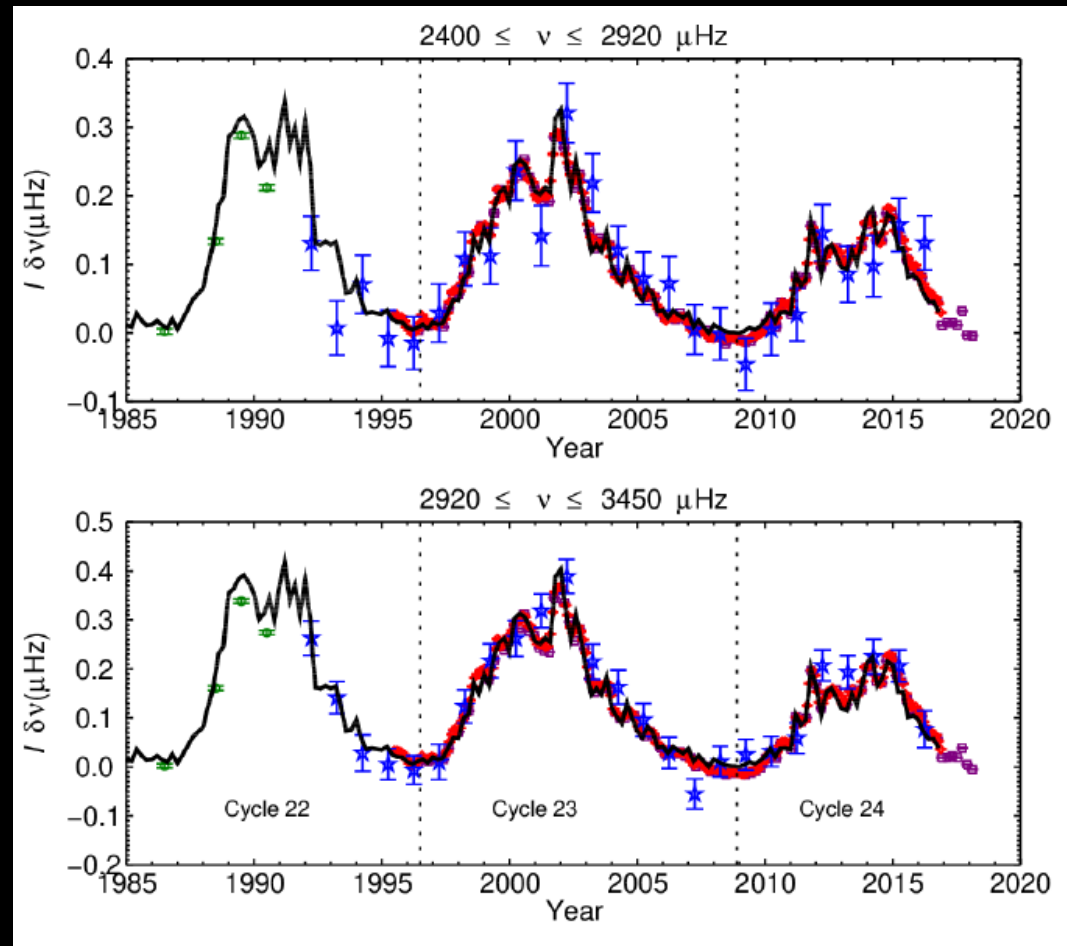
Range of science questions...

International/UK groups (and us) exploiting BiSON data for studies of...

... the solar cycle and dynamo theory, interior-atmosphere linkage... stellar evolution, angular momentum evolution, tests of standard solar model... solar abundance problem; WIMPs, dark matter... convection, physics of the photosphere... benchmarking stellar analyses, stellar noise and exoplanet detection... physics of moon Europa... atmospheric extinction and volcanic aerosols

The seismic Sun over three solar cycles

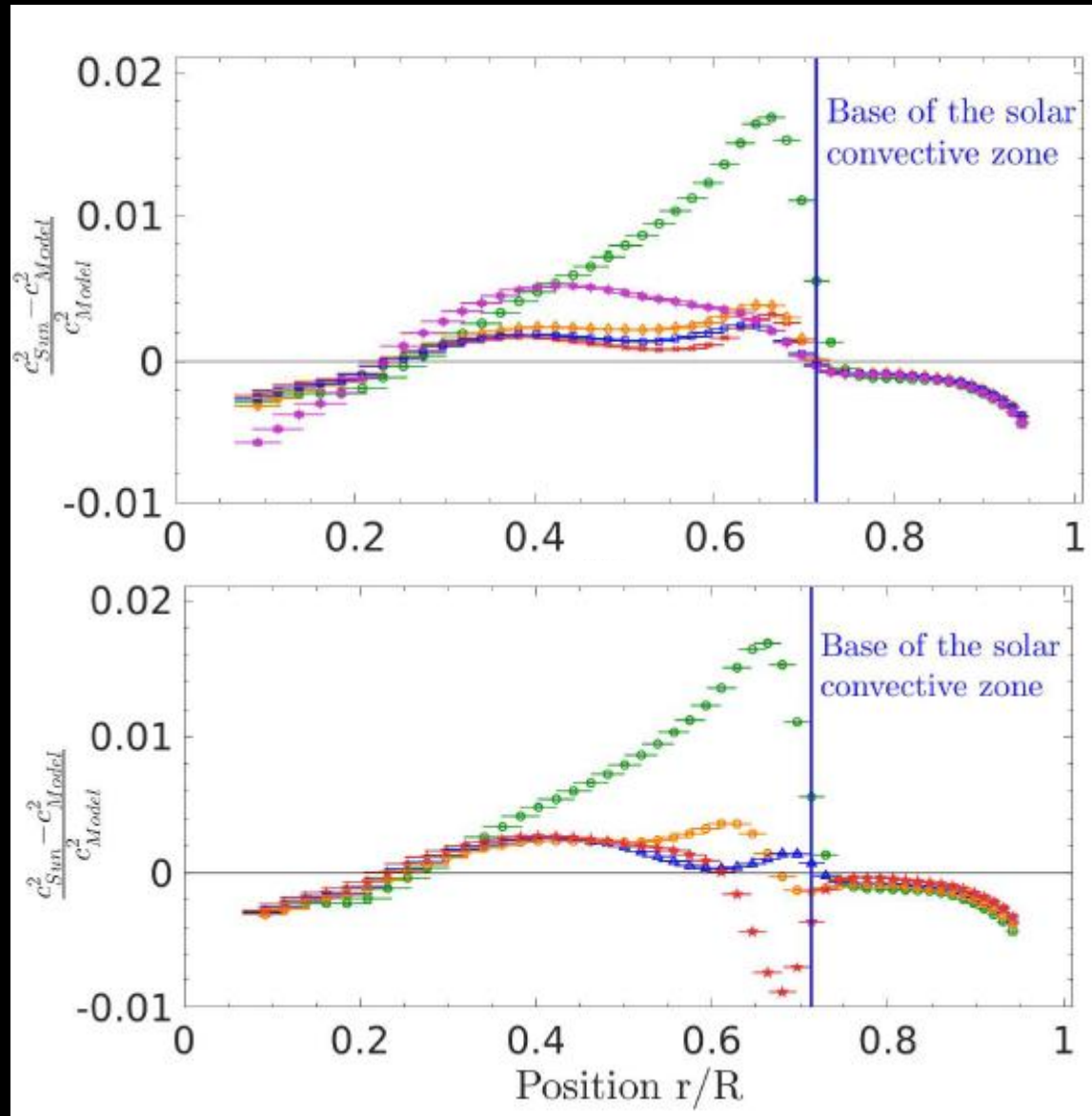
Shifts for a given change in activity were 10% larger in Cycle 24 than in Cycle 23



Howe et al., 2018
ApJ, 862, L5

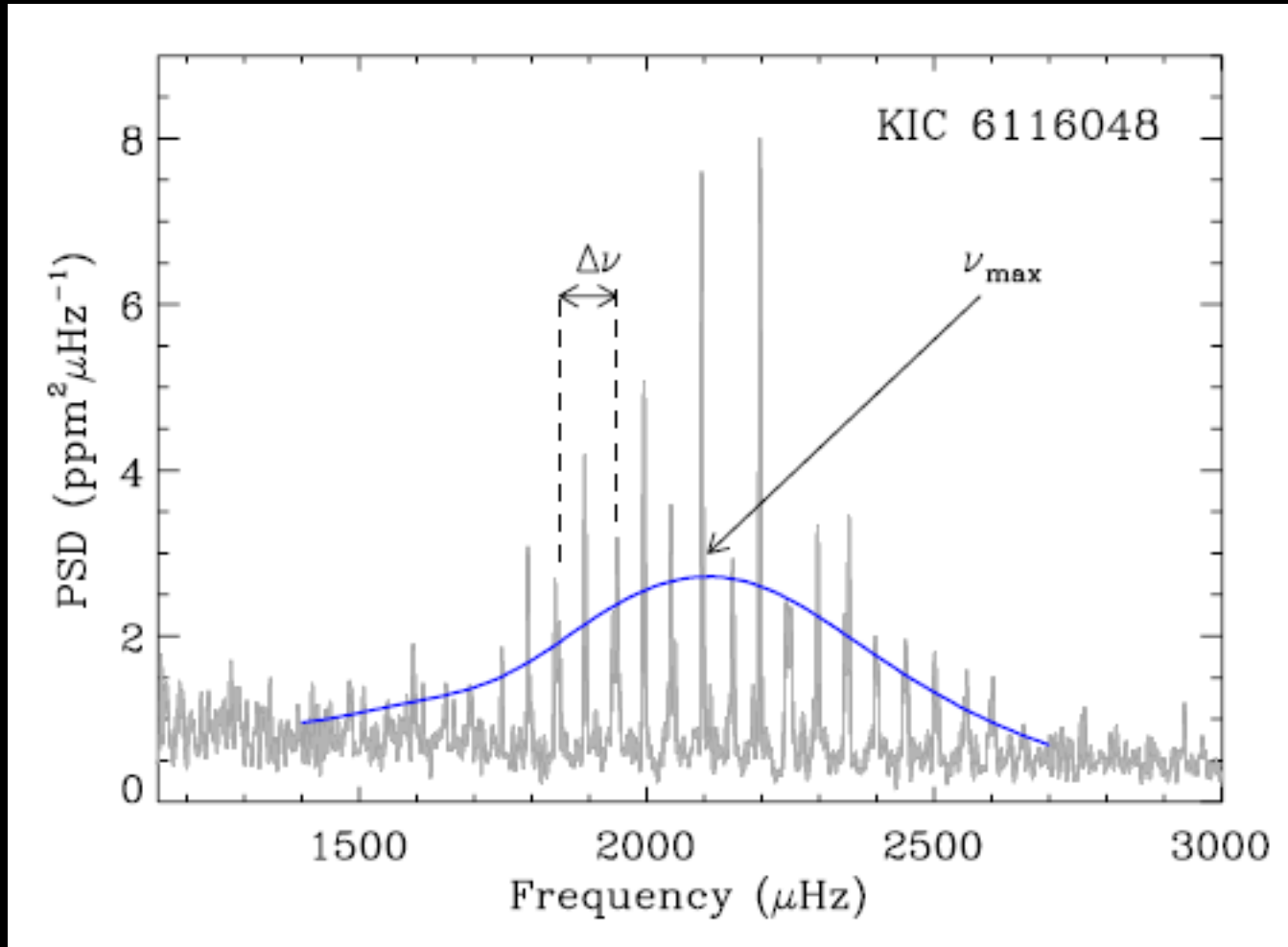
The Solar Abundance or Modelling Problem

Solution requires combination of changes to models (e.g. opacities, mixing)



Buldgen et al., 2019
A&A, 621, 33

Solar-cycle variation of ν_{\max}



Work in progress

BiSON Operations

- STFC support funded through March 2021
- Continuing programme of upgrades [using STFC Impact Accelerator funds]:
 - New light-feed system *now running* at Mt Wilson and Carnarvon
 - New spectrometer *now running* in Tenerife
 - New automated housing for Tenerife under design and construction