



SPICA and Spots

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Spots on the HR Diagram

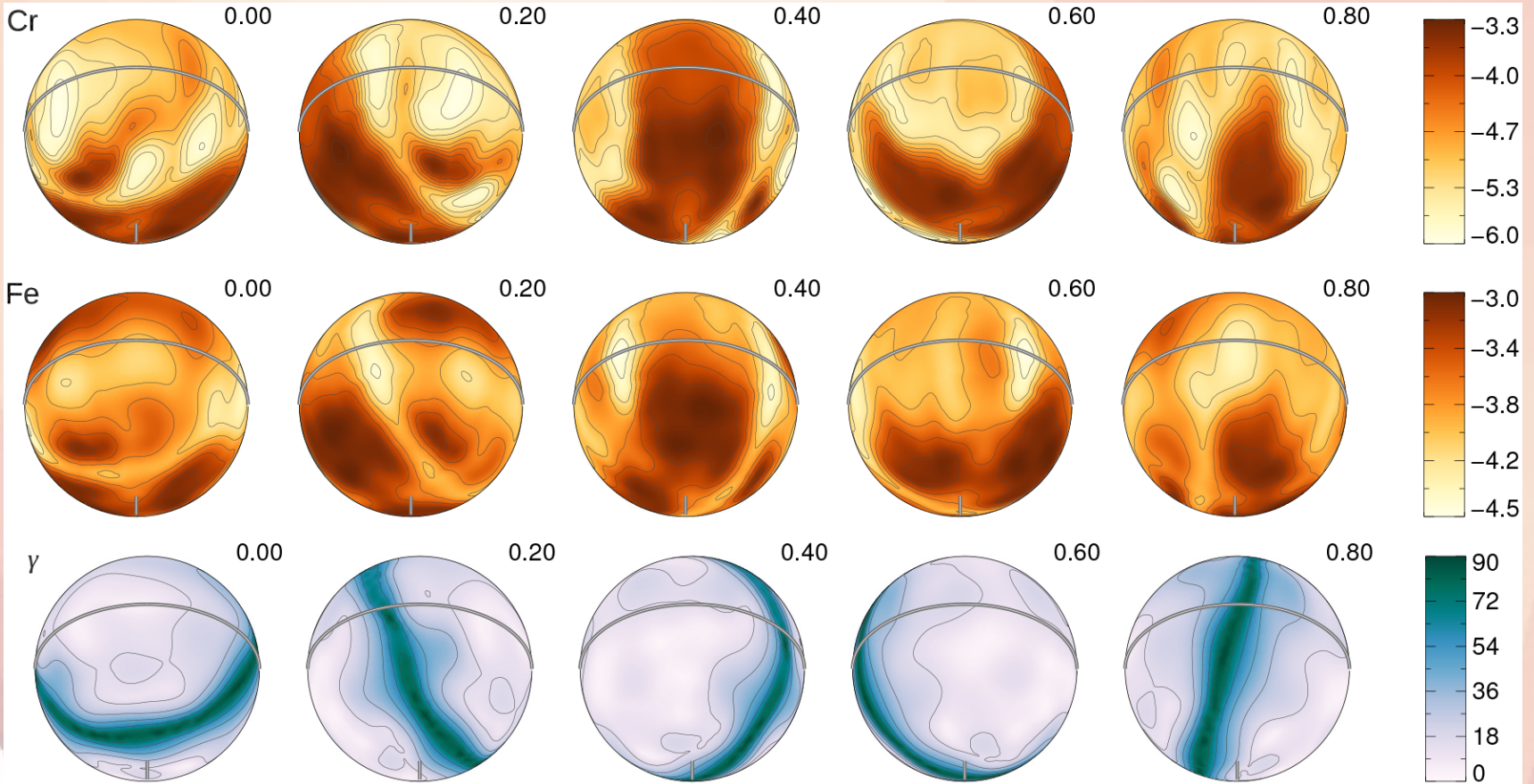
- Main Sequence Stars
 - Chemically peculiar abundance spots
 - Sunspot-like temperature spots from suppressed convection
 - Fully convective M-dwarfs
- Giants
 - Sunspot-analogous temperature spots from suppressed convection
- White Dwarfs
 - Non-uniform metal absorption

Theoretical Spot Models

- Models for chemical abundance in chemically peculiar stars
- 3D convective dynamo models
- MHD simulations of outer (convective) layers
- Sunspot cycles (past cycles matched, but future not predicted)
- Models do not scale to larger stars (cannot explain previous interferometric observations)

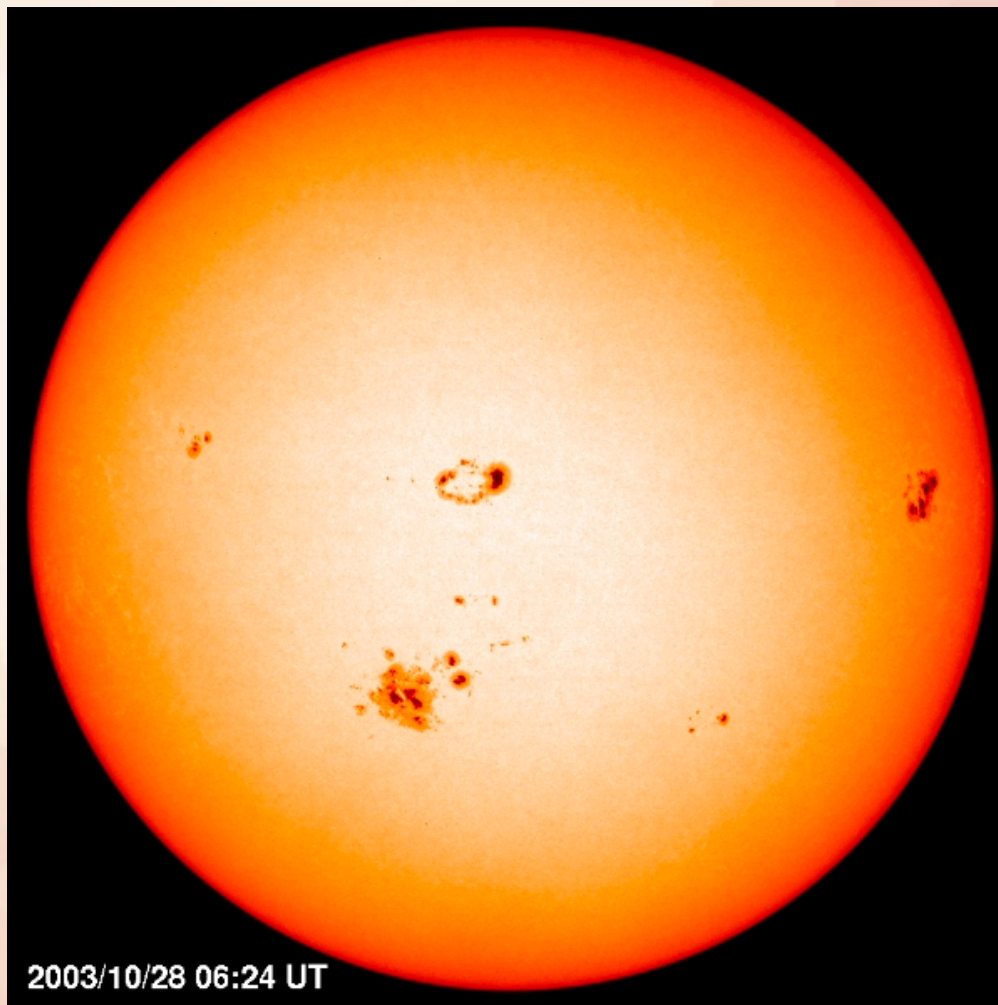
Recent Images

Chemical maps of chemically peculiar stars



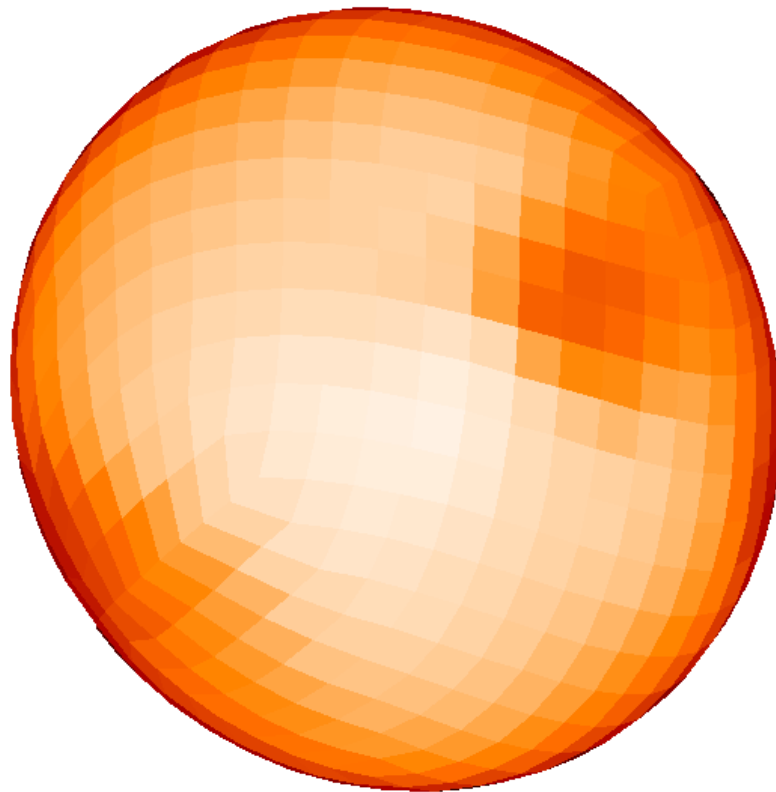
Recent Images

Direct images of the Sun



Recent Images

Interferometric images of giant stars (*H*-band)

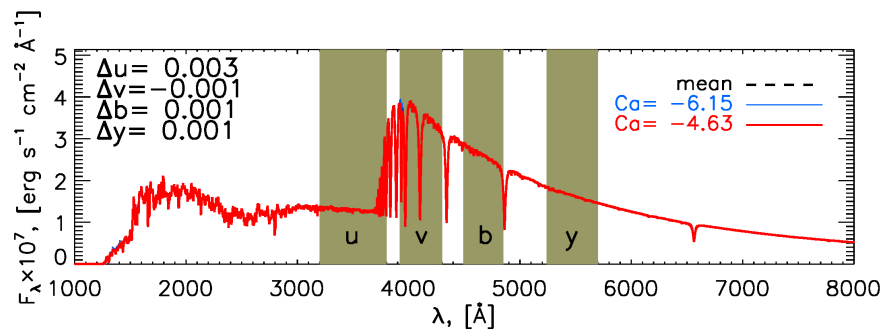


Improvements with SPICA

- Better resolution in V means smaller surface features and ability to detect gradients in brightness across spots (e.g., changes in chemical composition or penumbra/umbra)
- Spots are more prominent in V , compared to H
- Expand from the stars available to MIRC-X
- Image more than just magnetic spots

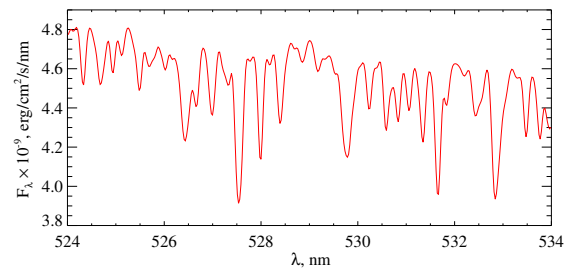
Chemical Spots in V

More light



More features

V



IR

