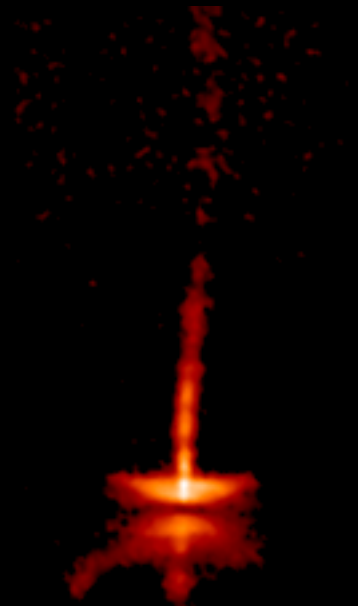


Shadows Round the Campfire: Young Stars' Infrared Variability and the Snow Line



*Edge-on disk HH30
6 years in HST R-band*

Neal Turner (JPL/Caltech & MPIA)
Myriam Benisty (MPIA & Grenoble)
Kees Dullemond (MPIA & ITA Heidelberg)
Shigenobu Hirose (JAMSTEC Yokohama)
James Muzerolle (STScI)



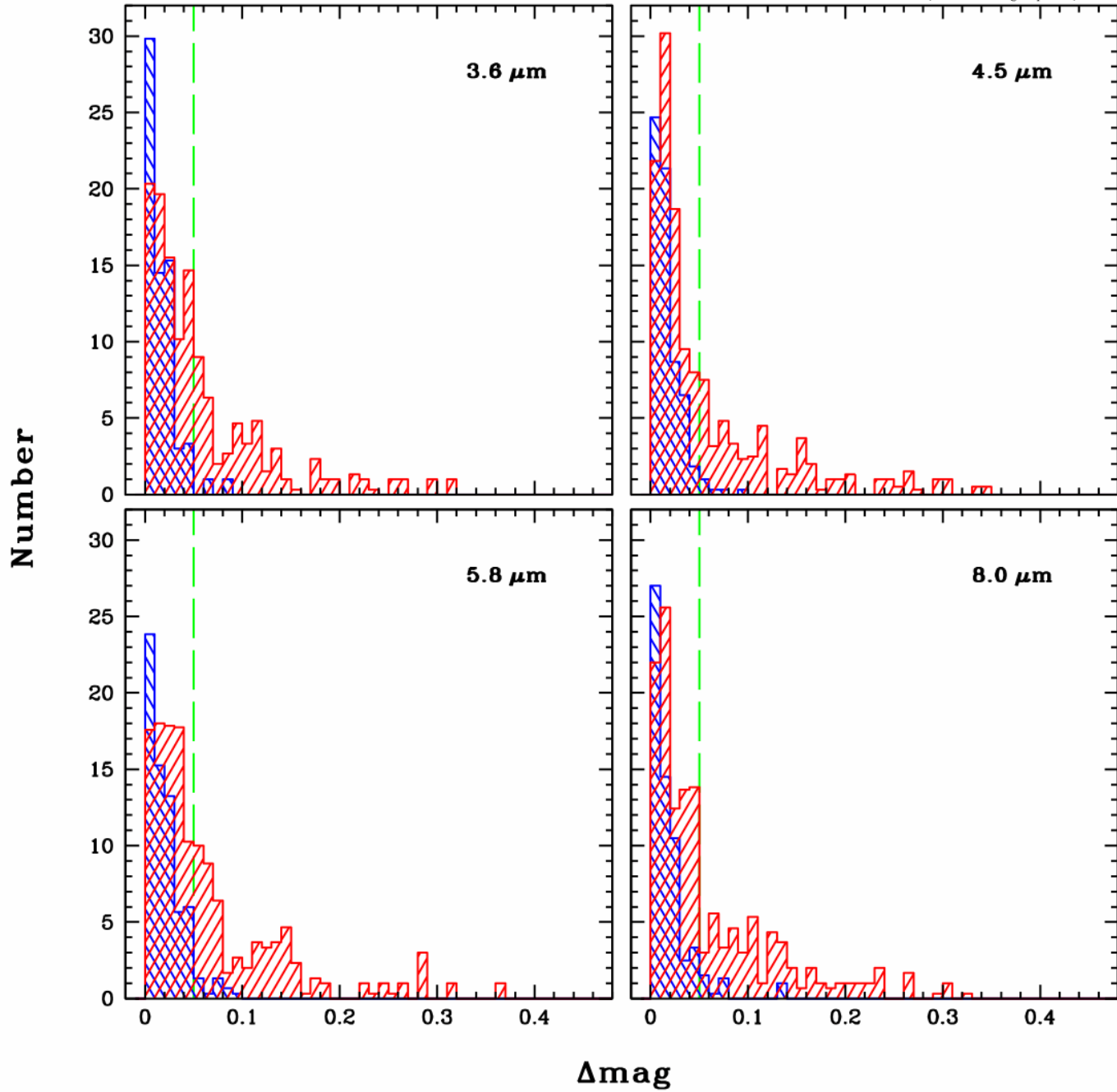
Outline

1. Most young stars with disks vary in the near-infrared.
2. A likely cause is the disk's surface moving up and down.
3. Such movements naturally arise in a magnetized disk atmosphere.
4. The atmosphere casts time-varying shadows.
5. The shadows move the snow line in and out.

Outline

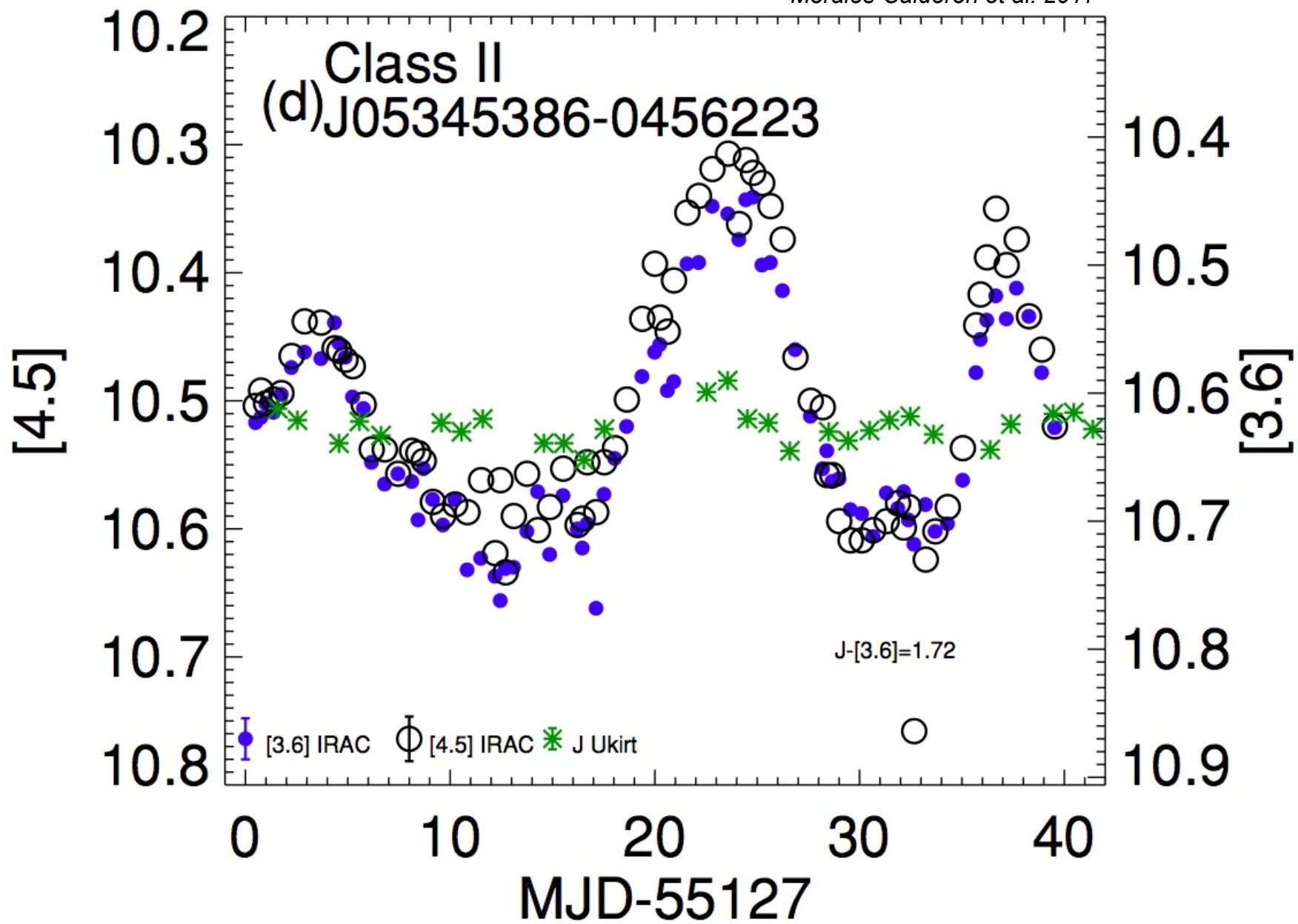
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Courtesy K. Luhman



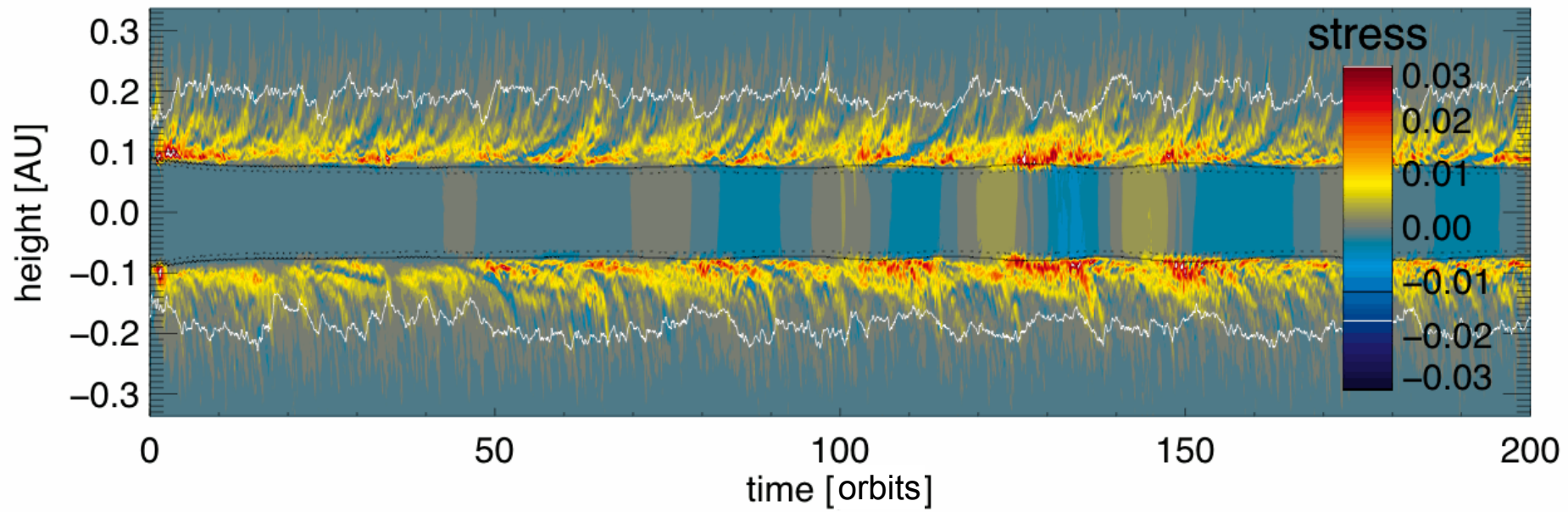
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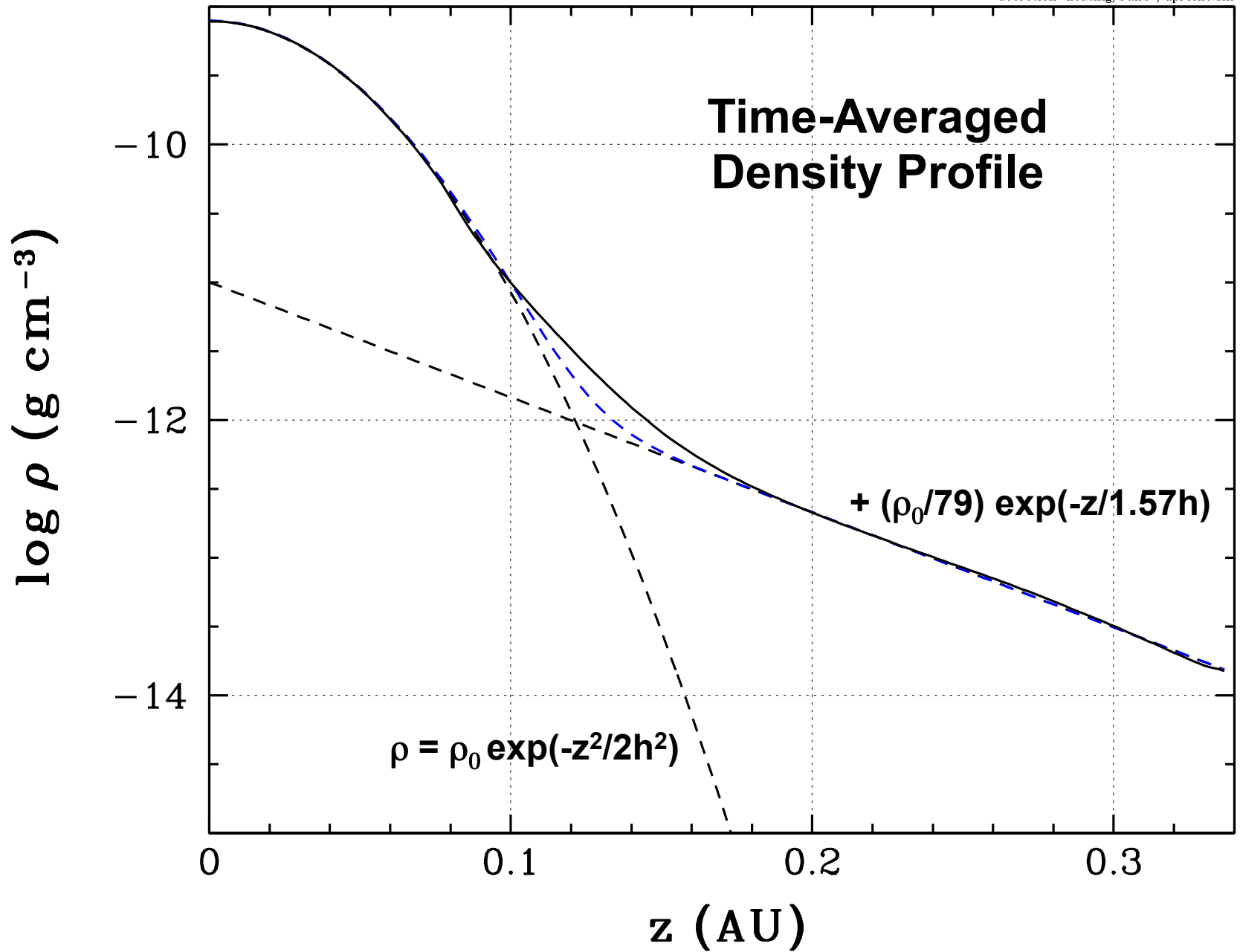
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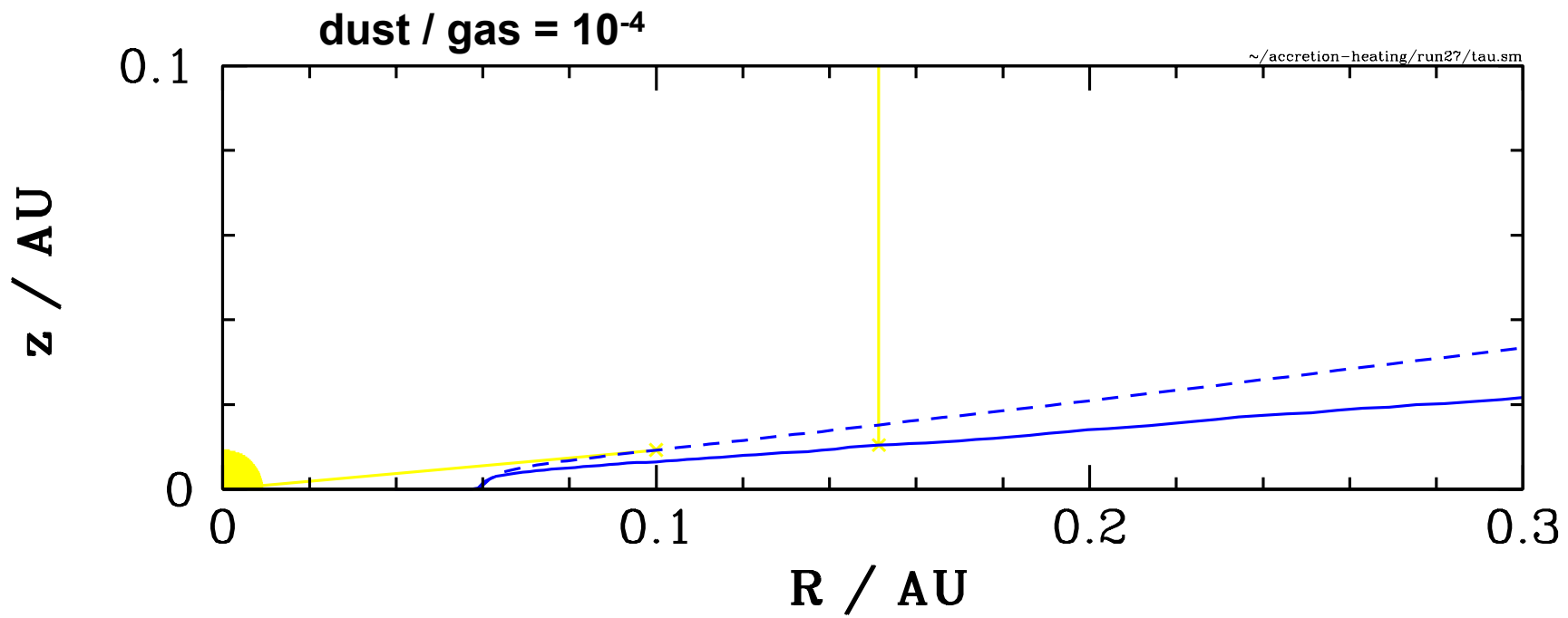
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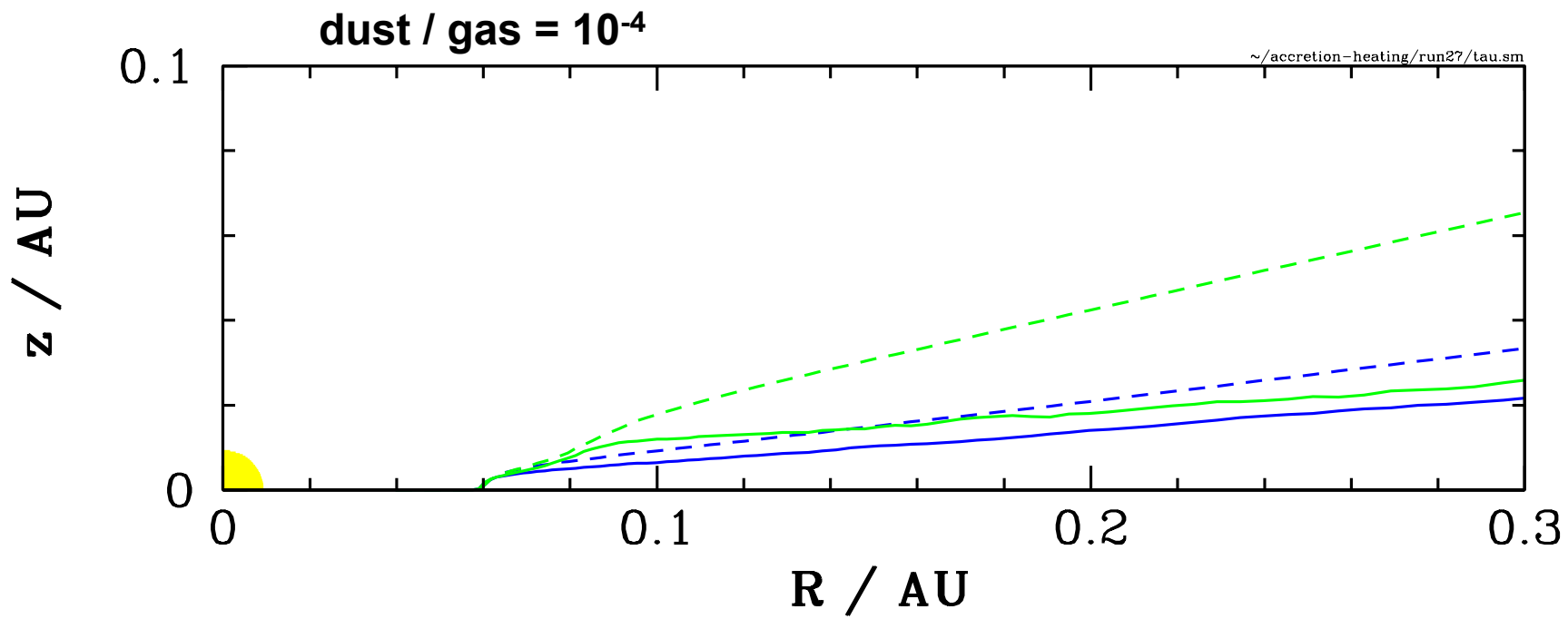


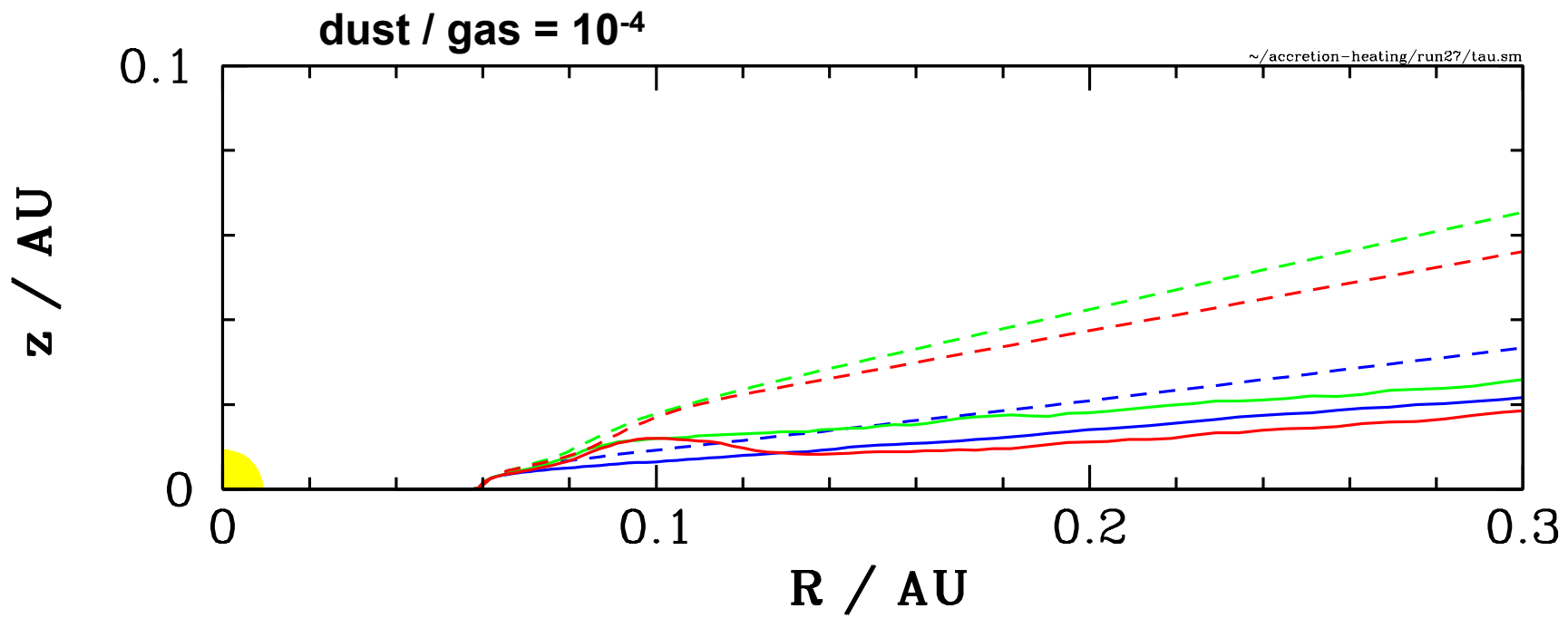


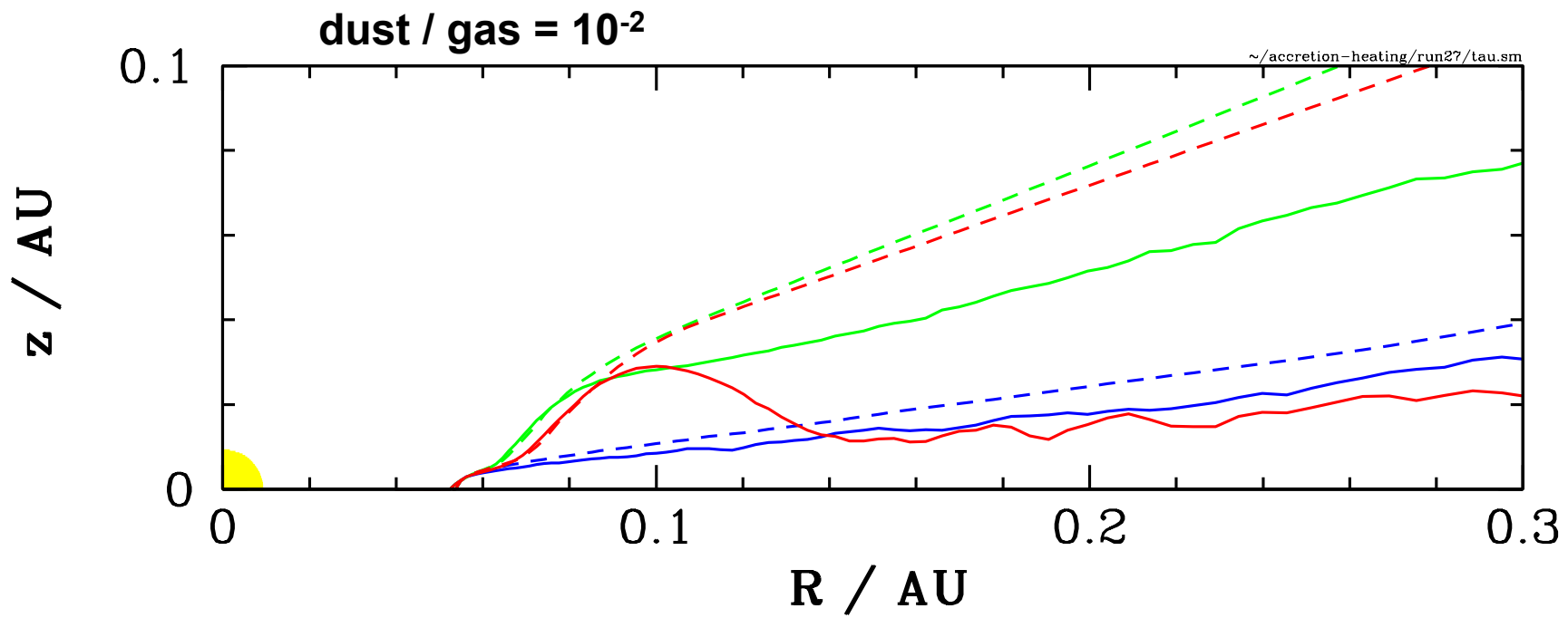
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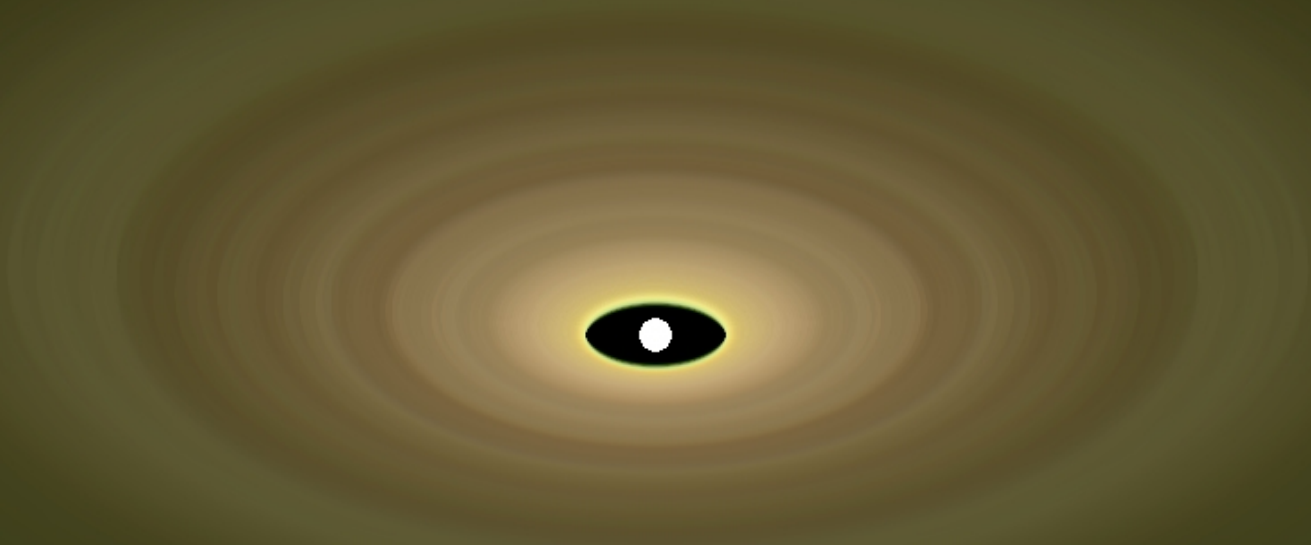






60°
0.8 AU

V
J
3.6

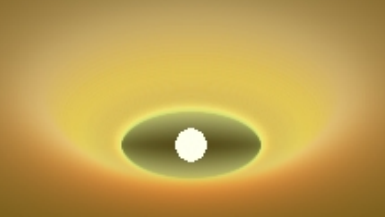


No magnetic support

60°
0.8 AU

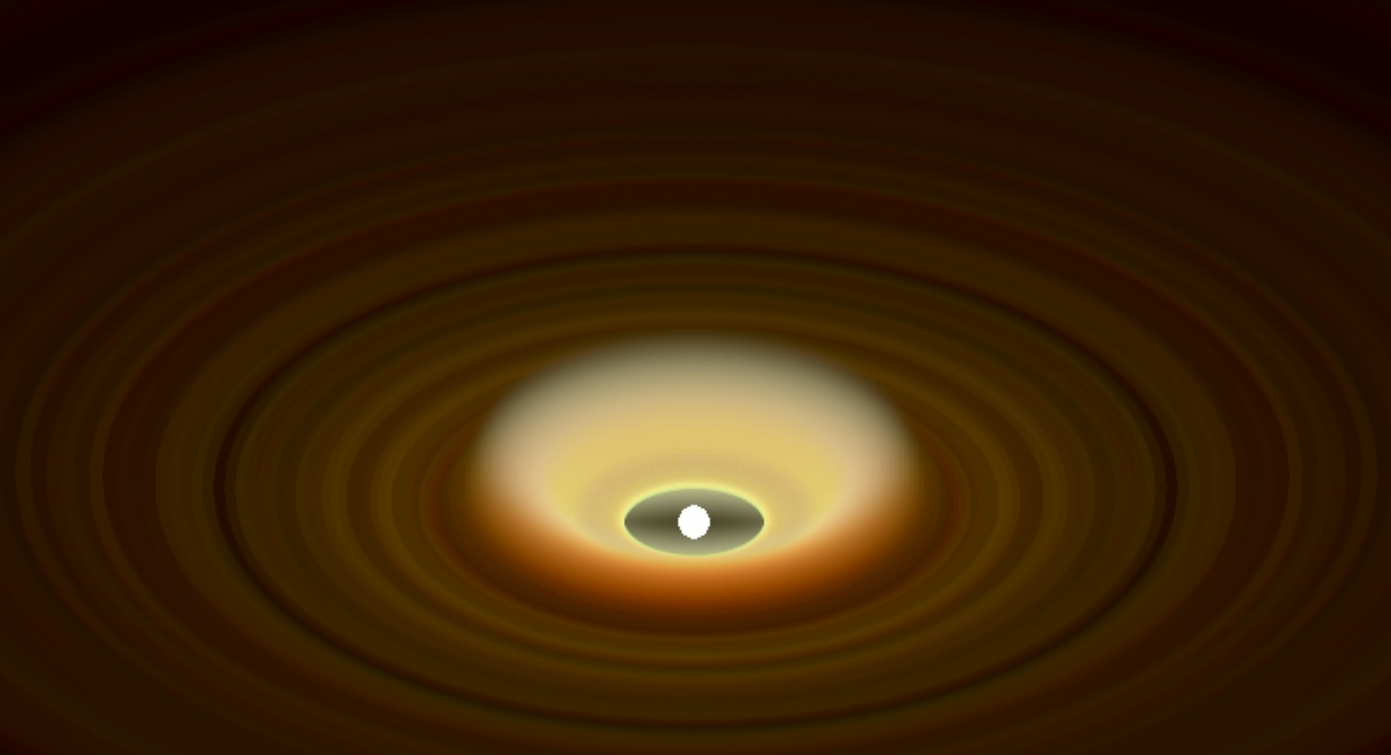
V
J
3.6

Magnetic support throughout



60°
0.8 AU

V
J
3.6

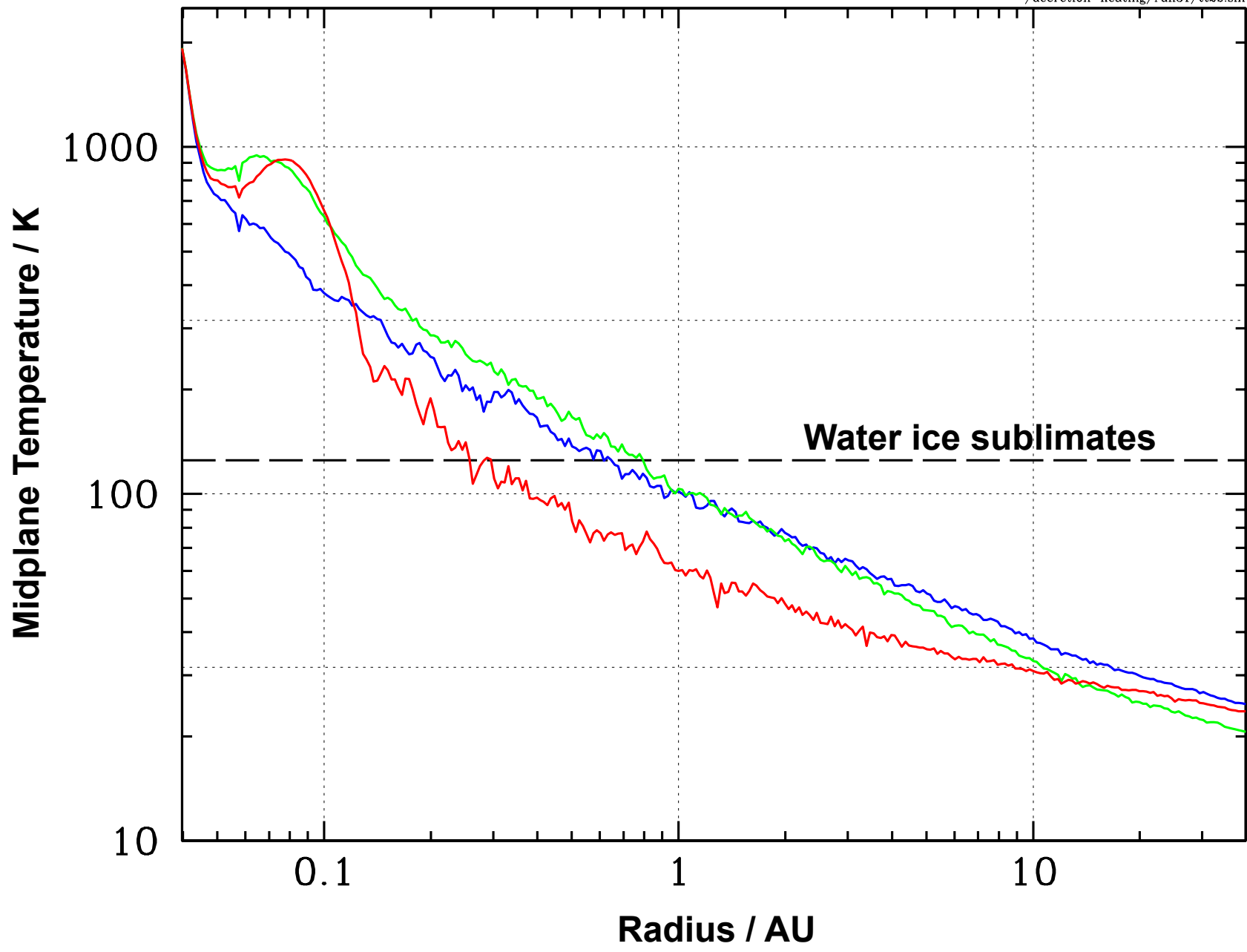


Magnetic support near 0.1 AU

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Summary

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