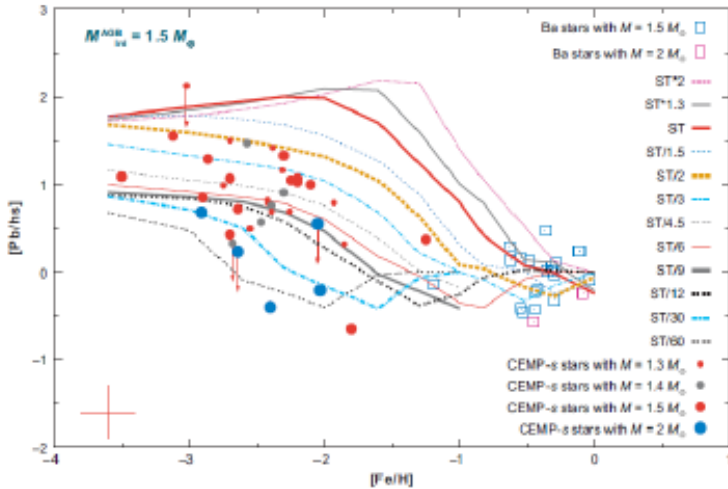


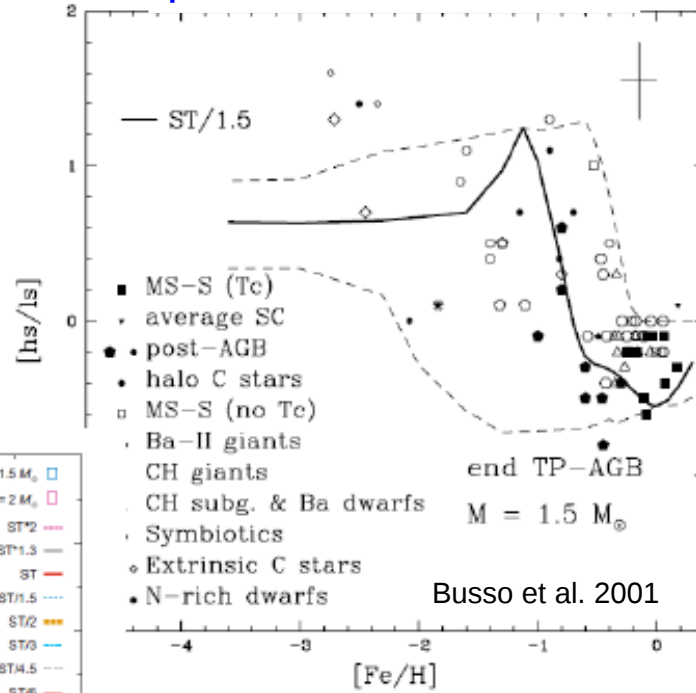
AGB stars

Ba stars, MS-S stars, post-AGB stars...

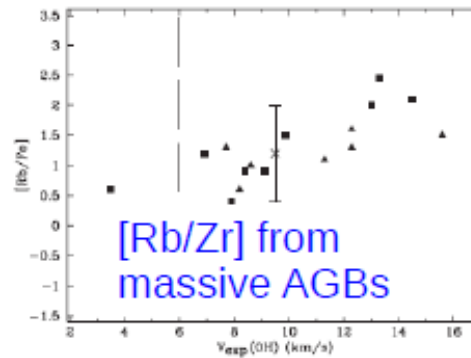
CEMP-s stars



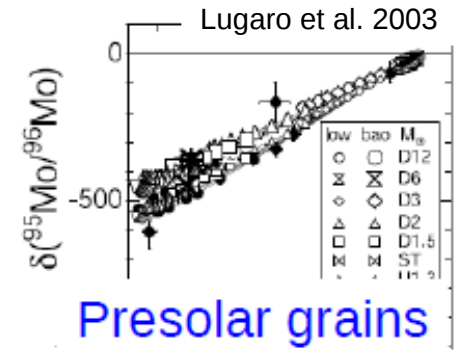
Snedden et al. 2008



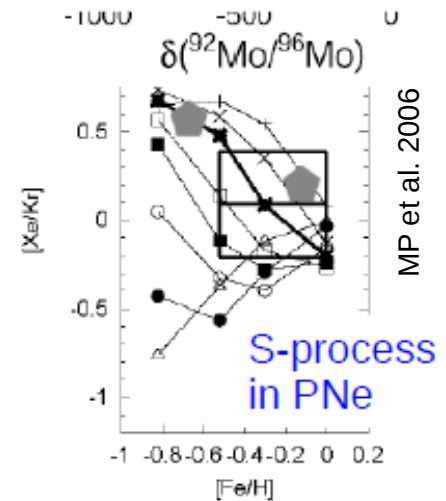
Busso et al. 2001



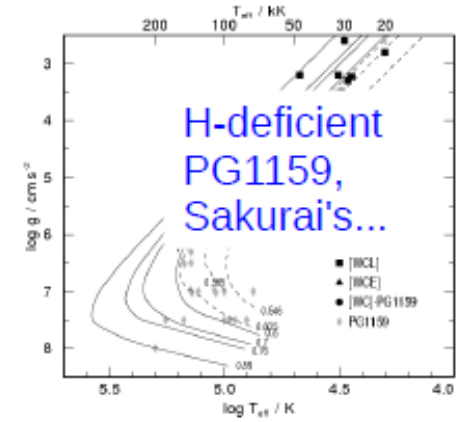
Garcia-Hernandez et al. 2006



Presolar grains



MP et al. 2006



Werner & Herwig 2006

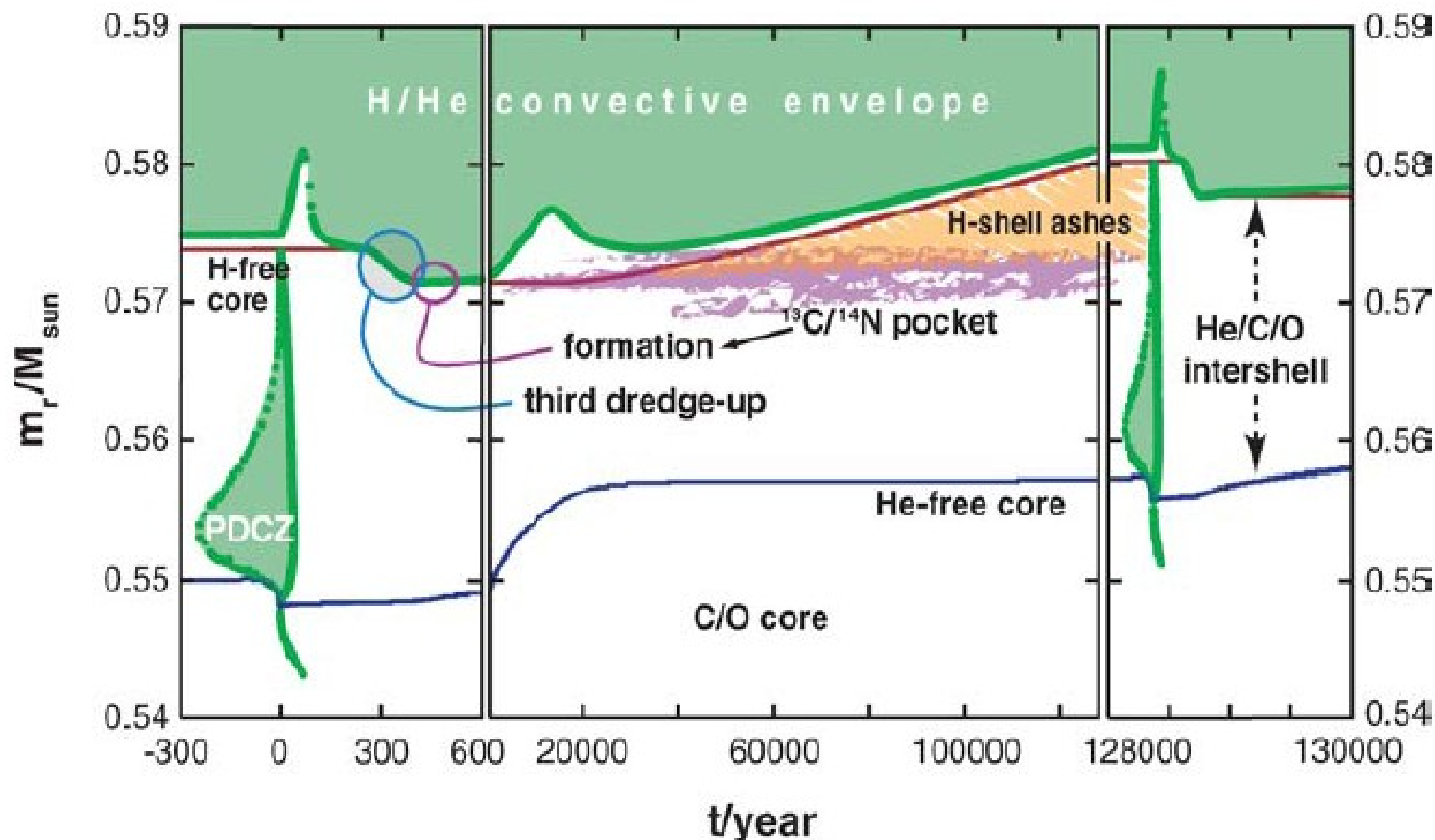


-3

[Fe/H]

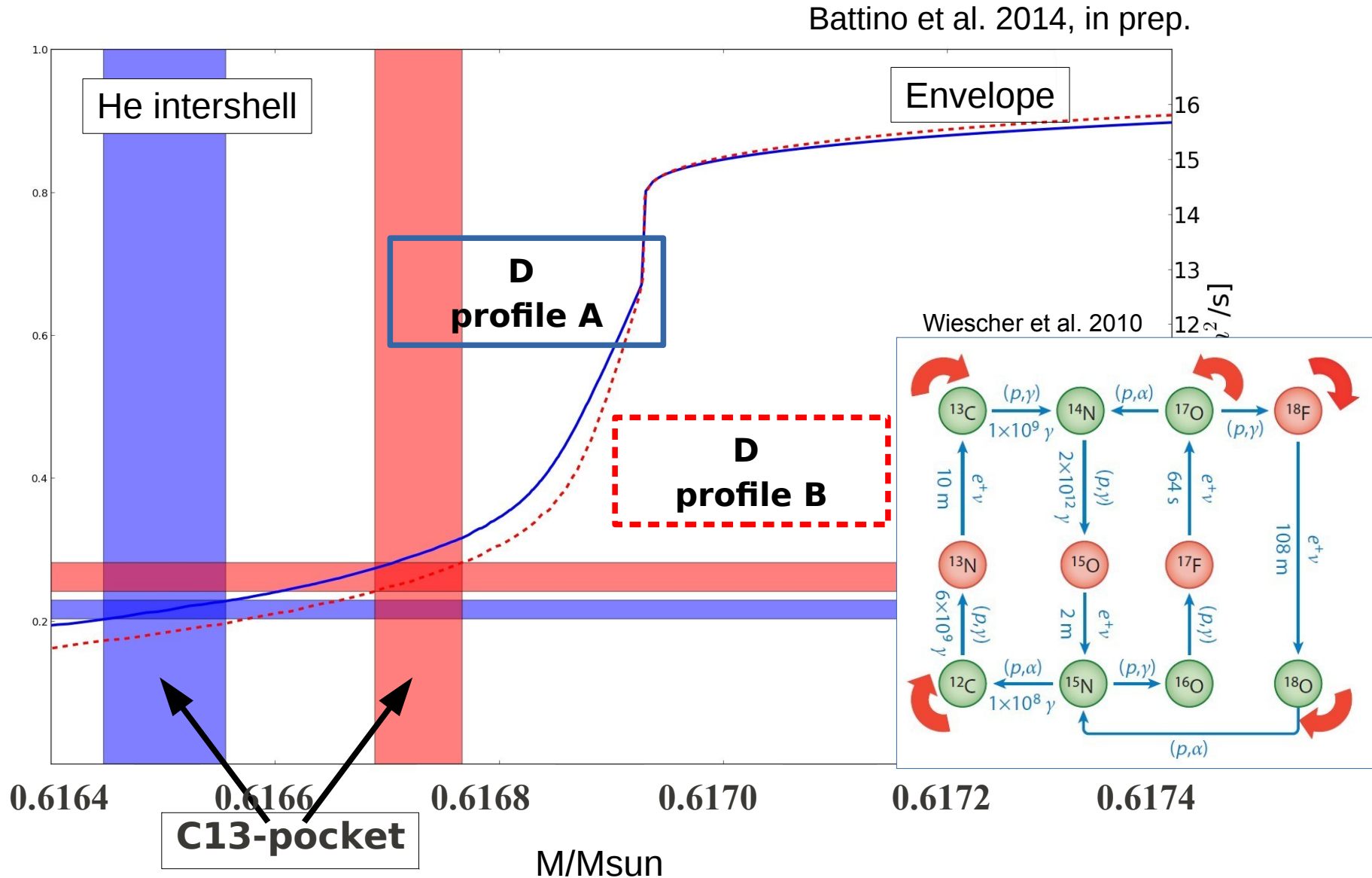
Solar system distribution

e.g., Bisterzo et al. 2014



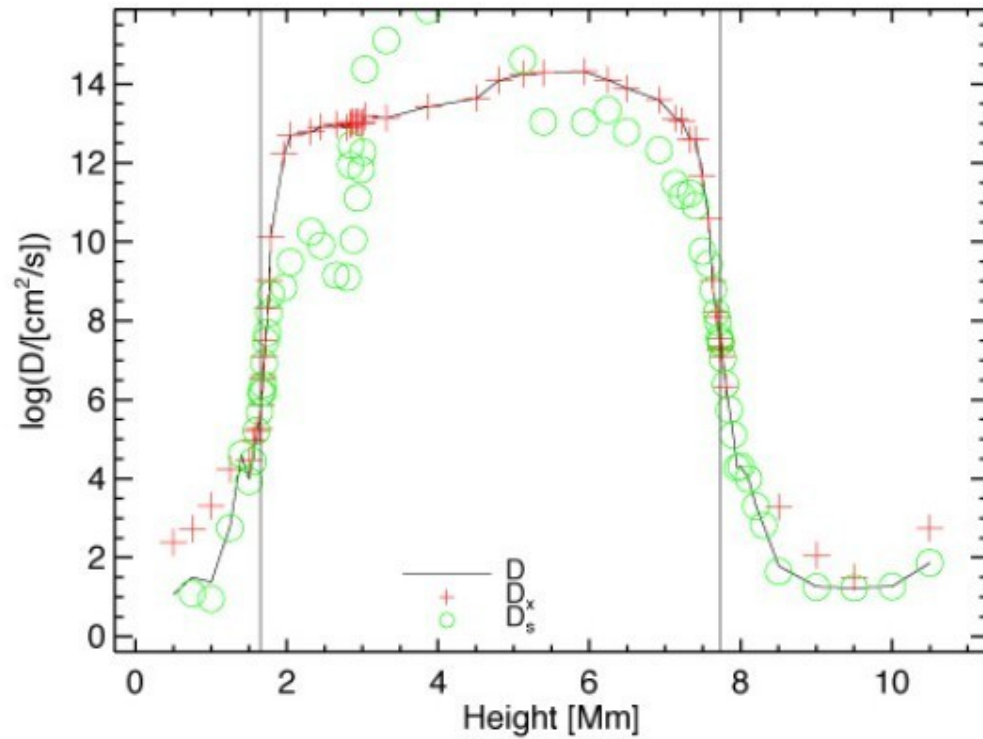
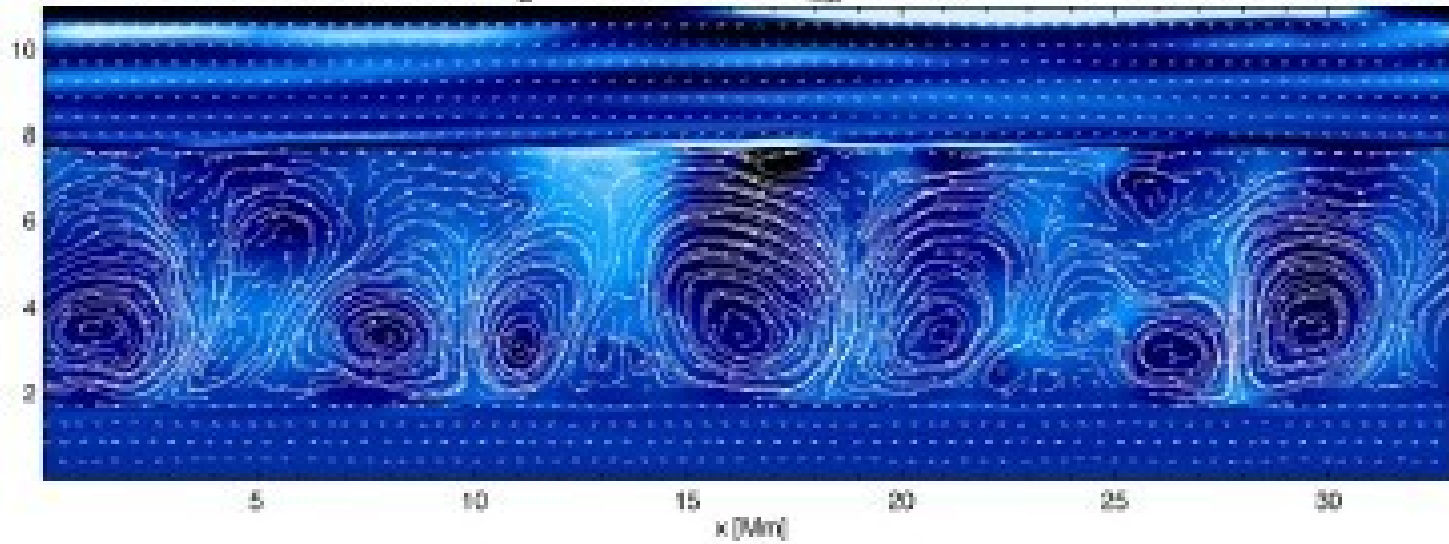
**Figure 3** Thermal pulse 14, the subsequent interpulse phase and thermal pulse 15 of  $2 M_{\odot}$ ,  $Z = 0.01$  sequence ET2 of Herwig & Austin (2004). The timescale is different in each panel.

We assume that gravity waves are dominating the formation of the C13-pocket (from Denissenkov & Tout 2003)



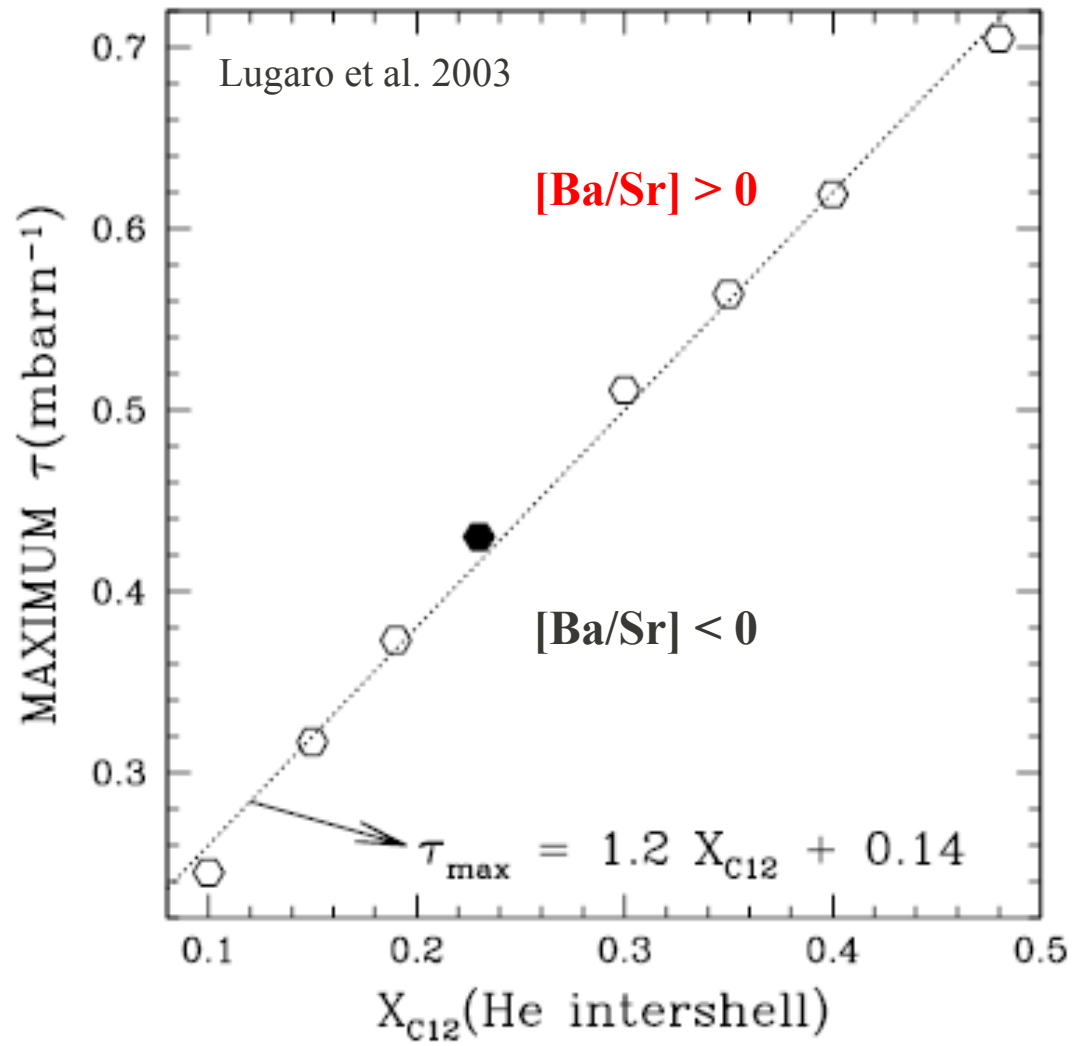
**C13-pocket formed within a range of  $D$  ( $\sim 10^{6-8} \text{ cm}^2\text{s}^{-1}$ ) and  $\text{H}/\text{C12}$  ( $< 0.3-0.5$ ). E.g., Lugaro et al. 2003 and Goriely & Siess 2004. See also discussion in Straniero et al. 2009, Cristallo et al. 2009.**

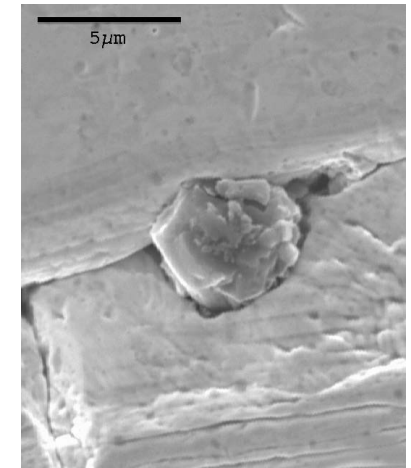
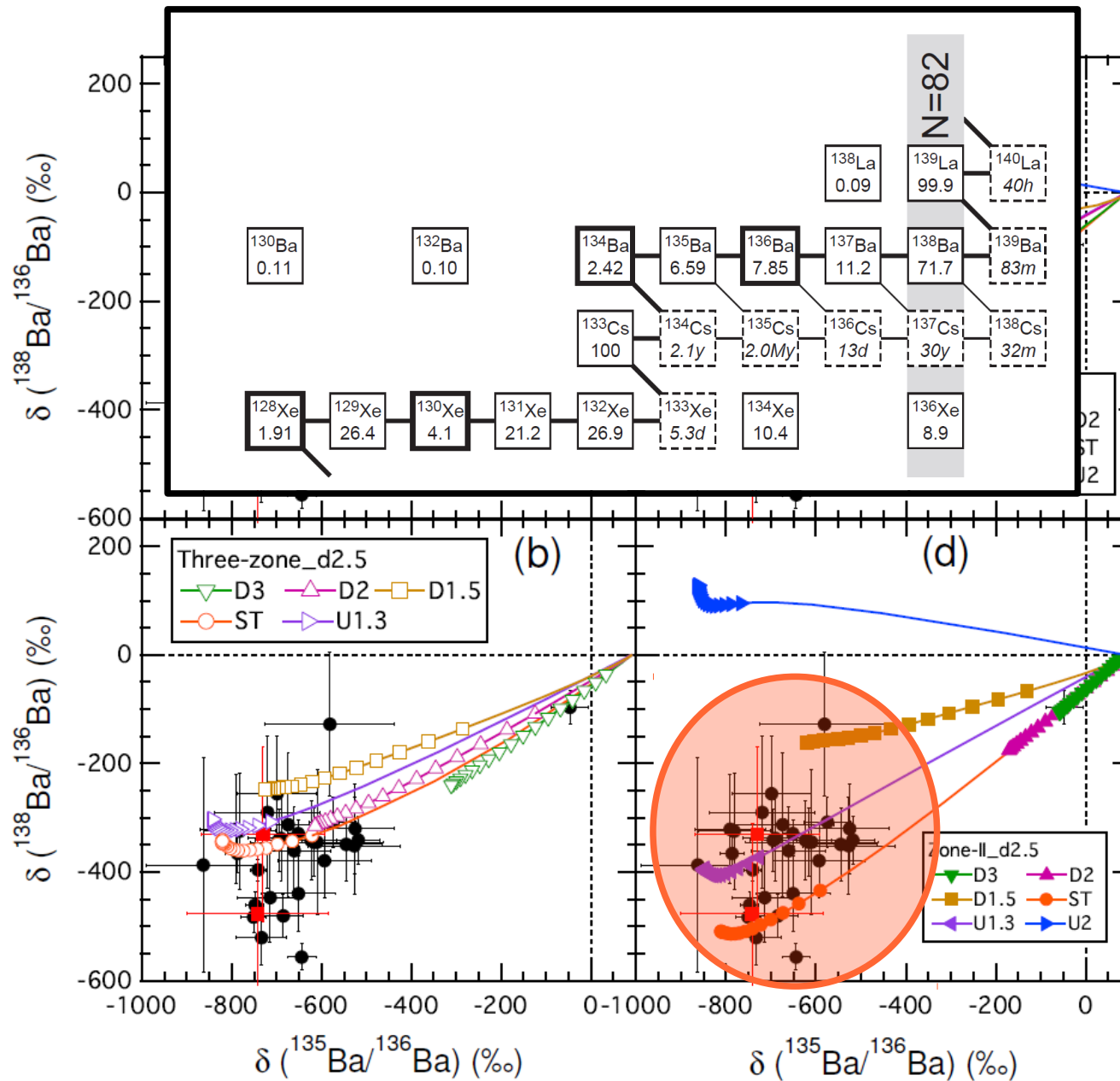
5

lc0gh: time=2900.0 s  $v_{\text{max}}=36.342$  km/s

**Herwig et al. 2007:**

diffusion as a double-exponential profile,  
starting from inside the convective region.

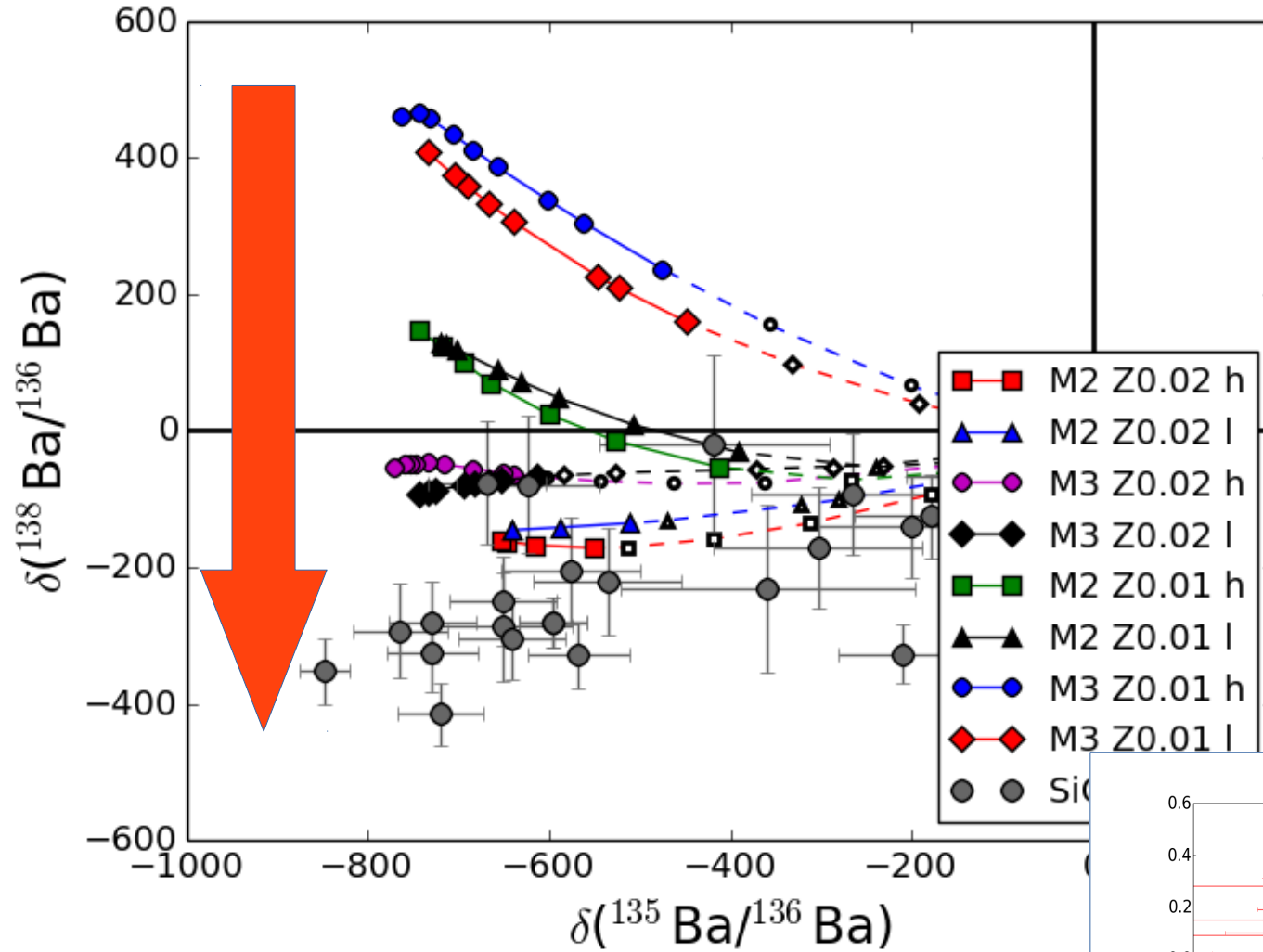




Comparison of presolar grains data with the predictions from the Torino models (e.g., Bisterzo et al. 2014)

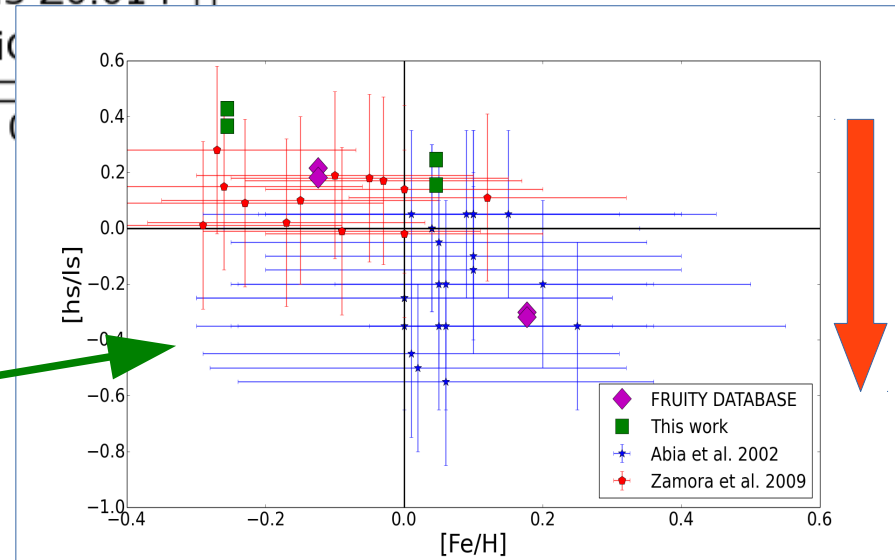
This corresponds to a range of [hs/l<sub>s</sub>] of the parent stars. The \*conversion\* depends on the Ba MACS adopted.

Potential solution from the next generation of these AGB models is to include feedback from rotation and magnetic field (J. den Hartogh & Raphael, Keele Uni.)



For a description of the impact of rotation to the s process in AGB stars:  
e.g., Herwig et al. 2003,  
Piersanti et al. 2013

Is it possible to reduce these errors?





AGB models adopting CBM at the bottom of the TP consistently with hydrodynamics simulations (Herwig+06) produce too much Si30 compared to presolar grains observations. Is this a problem of the Si30(n,g)Si31 MACS?

25 keV  
 Guber+03 =  $2.13 \pm 0.32$  mb  
 Beer+02 =  $3.51 \pm 0.15$  mb  
 Boldeman+75 =  $8.8 \pm 0.8$  mb

