DISCUSSION (Dworetsky; Cowley)

LECKRONE: Why must we assume solar abundances provide the correct standard of comparison for abundance enhancements in CP stars? Doesn't this imply that the interstellar medium has not evolved since the Sun formed?
DWORETSKY: It is difficult to think of a better standard on which we could all agree. As the comparison objects are all near A0 or earlier, and near the main sequence, they must be relatively recent additions to the stellar family (ages < 10^9 yr). Galactic abundances are thought to evolve only very slowly with time. My main purpose in adopting only standards of near-solar composition is to avoid inclusion of hot Am stars where the pattern of abundances has probably been altered by diffusion processes. I also wish to avoid using as standards weak-lined A0 stars, whatever their origin.
SHORE: Perhaps the answer is to look in clusters. At least in this case you are looking at family members and the initial abundances should be more nearly identical. Field stars are useless in this regard because you don't know their pedigree. Star formation models for large scale structures often produce large variations in the local star-forming activity within an annulus of the galaxy, and there's no guarantee that the production of metals will be uniform with galactocentric distance. In stochastic models, the variance at any time (e.g., 10^7 to 10^8 yr) can be sufficiently large that it could screw up the initial conditions for members of a dynamically mixed population. I should add that clusters rather than associations are the better choice because their parent molecular clouds are smaller.
DWORETSKY: Yes, in principle it is a good idea, but the problem is that the stars are not so bright and there are few slowly rotating stars available, in the clusters, that are not peculiar.
MICHAUD: Mike, you mentioned a similar behavior of Zn and Co in HgMn stars. Do you imply a correlated abundance between Zn and Co?
DWORETSKY: The correlation coefficient between Co and Zn abundances found by Smith and Dworetsky (see our poster paper at this colloquium) is not statistically significant; i.e., individual HgMn stars with high Co abundance do not tend to have high Zn abundance also. The samples are heavily censored as there are many upper limits rather than detections.
GERBALDI: A recent ESO preprint by Mathys discusses observations of variation of intensity of O I line intensity. This could explain part of the dispersion noted in the graph of [O/H] *vs.* T_{eff} shown by Dr Cowley.
ADELMAN: With Bolcal and Koçer, I have recently analyzed the Am stars 15 Vul and 32 Aqr (MNRAS, in press). We obtained abundances for many of the rare earths. In another paper with A G Davis Philip (PASP, 104, 316, 1992), I analyzed both 7 Sex and γ Gem. Both appear to be normal A0 stars, but I note that 7 Sex has a high velocity and is dynamically a Pop I old disk star.