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The AGB contamination scenario

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Abstract. This is a written version of my contribution to Round Table III.

1. Proposed tests

The primordial scenario suggested by D'Antona, Gratton, and others, which assigns the observed ONa-anticorrelation and the Mg- and Al-anomalies in cluster red giants to processes in thermally pulsing, hot bottom-burning AGB stars of an earlier generation, has many attractive features. The models also make clear predictions concerning the initial composition of those stars we see today as red giants. These predictions should be tested with stellar models using the predicted initial composition, which is helium-enriched. One can, for example, check, whether the subgiant branch, during which the effectiveness of the hydrogen-shell (i.e. the abundance of CNO) is important, or the location and extent of the bump are affected; whether there are photometric differences between "normal" and "AGB-contaminated" stars, even if so far the isochrones appear to be indistinguishable. Observationally, a determination of the luminosity function and the distribution of stars of both types towards the tip of the RGB should be done, because the initial helium content will affect both. It is also necessary to investigate closer the nucleosynthesis of AGB stars of interest, because I think that no agreement has been reached here concerning the production/destruction of certain elements (Na, Mg and its isotopes) as function of mass, metallicity, etc. We need to be able to define robust results, which can guide future observations.