Chemical abundances in the multiple sub-giant branch of 47 Tucanae: insights on its faint sub-giant branch component

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The faint SGB of 47 Tuc

- C+N+O enhanced by a factor of ~ 1.4 diluted with 50% of pristine gas
- He enhanced at a level of Y~0.28



Anderson+2009, ApJL, 697, 58

di Criscienzo+2010, MNRAS, 408, 999



Na/N rich C poor stars distribute on the different photometric sequences defined by the CU,B,I index, which maximises the separation between stellar populations with different light elements abundances







faint SGB has C+N+O higher by a factor of 1.1, but the difference is within 1 sigma level.

The maximum difference allowed by our data is an enhancement by a factor of 1.4.

Theoretical work suggested that the faint SGB is enhanced by a factor of 1.4 (di Criscienzo +2010)

Our results are also consistent with an enhancement in He of the faint SGB