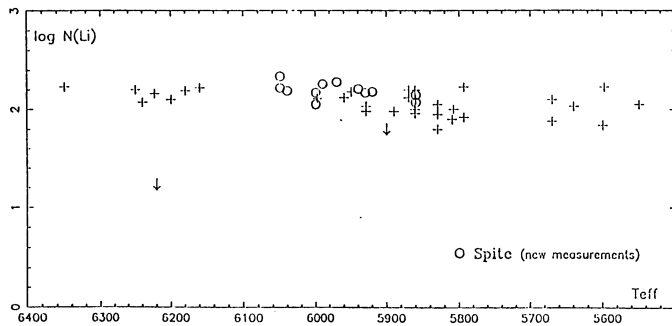


LITHIUM IN POPULATION II STARS

F. SPITE, M. SPITE, R. CAYREL, S. HUILLE,
Observatoire de Paris
92195 Meudon Cedex
France

NEW data about dwarfs : a few more metal-poor dwarfs have been observed for lithium at the CAT + CES at La Silla (ESO). These new results, together with a few new measurements in the literature show again a constant lithium abundance, confirming the trend previously found (the plateau). Let us note however that two metal-poor dwarfs have recently been reported with a low lithium abundance. Obviously, more observations are needed.



Abscissa : effective temperature (increasing to the left). Ordinate: $\log (N_{\text{Li}}/N_{\text{H}}) + 12$. The lithium abundance is independent of the metallicity and of the temperature (and mass) of the metal-poor dwarfs. All measurements published before May 1991 are gathered in the figure.

INTERPRETATIONS : recent theories interpret the plateau by the combination of two depletion processes. Both processes deplete lithium with rates varying as a function of temperature (and mass), but these rates have opposite trends. The compensation is not perfect, and the theories predict a decrease of the lithium abundance at the hot end of the plateau. Since hotter (more massive) stars have evolved off, towards the giant branch, this decrease cannot be *directly* observed. However, the lithium abundance may be observed in the evolved stars, and the initial abundance in the dwarf progenitor can be computed if the dilution factor is known (when a dwarf evolves as a giant, the lithium of its atmosphere is diluted in lithium-free matter).

AN INTERESTING GIANT : we observed a very metal-poor giant with a lithium abundance lower than the value of the plateau by a factor of a little more than an order of magnitude. The dilution factor may be estimated also as a little more than an order of magnitude. This star, when it was unevolved was presumably hotter and more massive than the presently observed dwarfs. If this is true, this hotter star has only diluted (not destroyed) its "normal" lithium content. This is interesting, but NOT too much weight should be given to a single star : again, more observations are needed.