The Near-IR [SIII] Lines in a Sample of Star-Forming Galaxies: Chemical Abundances

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Abstract. We present a detailed spectroscopic study of a sample of 34 star-forming dwarf galaxies, ranging from the blue to near-infrared ($\lambda 3700 \text{Å}$-1μm) (Kehrig *et al.* 2006). The metal enrichment in this kind of objects has been operating typically at low metallicity enviroments. The spectra were observed with the 1.52m telescope at La Silla/ESO. We derive fundamental parameters for HII regions and ionizing sources in our star-forming galaxies, as well as gaseous metal abundances. All the spectra include the nebular[SIII]$\lambda\lambda 9069,9532 \text{Å}$ lines, that are of crucial importance in the derivation of the S/H abundances, and relevant ionization diagnostics. We study the relative hardness of their ionizing sources using the η' parameter (Vílchez & Pagel 1988), and exploring the roles played by metallicity and age. The ionic and total O/H was also derived using direct determinations of the t_e[OIII]. The mean S/O ratio derived in this work is constant and slightly below the solar $(S/O)_\odot$ value (see fig 1). The data presented here are consistent with the conclusion that S/O remains constant as O/H varies among the sample of HII galaxies. Variations in S/O along the whole O/H abundance range may be present, but the scatter in S/O (due mainly to observational errors) is still large to constrain them. The assumption that the S/O ratio remains constant for all abundances is still an open question and should be explored further (Pérez-Montero *et al.* 2006).

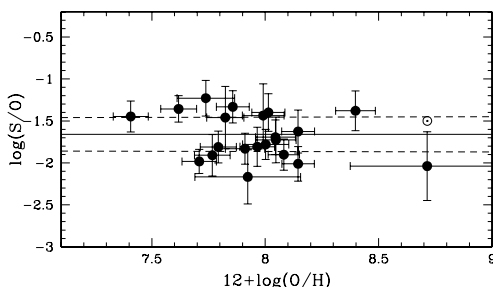**Keywords.** ISM: abundances, ISM: HII regions, Galaxies: abundances, Galaxies: dwarf

Figure 1. The observed S/O abundance ratio for the subset of galaxies of the sample with te [OIII] versus their oxygen abundance. The solar value is shown. The dashed lines are +/- (1σ) of the mean as shown by the continuous line.

References

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