Large and small-scale structure of intermediate and high velocity gas towards the Magellanic Clouds using FLAMES

Smoker J.V. 1 , Fox A.J. 2 , Keenan F.P. 3

Abstract

We present CaII and NaI interstellar absorption-line spectroscopy of early-type stars in the LMC and SMC in order to study the large- and small-scale structure in intermediate and high velocity clouds and compare them to Galactic gas. Our ultimate aim is to shed light on the location and formation mechanism of the clouds and if they could provide fuel for star formation in the disc of the Milky Way. To do this we present around 400 archive FLAMES observations that probe scales of 10 arcseconds to 25 arcminutes, and around 85 FEROS and UVES archive sightlines. In ten sightlines we find CaII/OI ratios in I/HVC gas ranging from 0.2 to 1.5, indicating either dust or ionisation effects are present. Finally, our results on small-scale structure are compared with a simple model of the ISM.

¹European Southern Observatory, VLT

²Space Telescope Science Institute

³Astrophysics Research Centre, Queen's University Belfast