

Abstract Submitted  
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**SALT Data Reduction for Multi-Slit Spectroscopy** GEORGE KHARCHILAVA<sup>1</sup>, Rutgers University, ELISABETH TURNER, Tufts University, ADAM BROUSSARD, ERIC GAWISER, Rutgers University — Spectroscopic data reduction is necessary to fully identify emission lines from distant galaxies. There are various limitations that need to be addressed in order to effectively prepare spectroscopic images for scientific analysis such as cosmic ray exposure, variations in instrumental response, and sky background emission. To minimize these limitations, we develop a reduction pipeline to process multi-slit spectroscopic data taken by the Southern African Large Telescope (SALT). Each set of data comes in the form of science images, flat-field images, and an arc lamp image. We use flat-fielding to correct for variations in instrumental response, then cosmic ray removal is performed, followed by stacking of the science images. Stacked images are then calibrated for both wavelength and flux sensitivity. Once the data are successfully reduced, a plot of flux versus wavelength can be created to show the various emission lines present from distant galaxies. By analyzing spectra of galaxies, emission lines for our sample can be identified as either Lyman-alpha or ionized oxygen, and fitted to determine galaxy physical properties including electron densities, ionization parameters, velocity dispersion, dust reddening, metallicities, and star formation rates.

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