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Multiwavelength calibration of the Pierre Auger Observatory fluorescence detectors and its effect on reconstructed parameters[1] BEN GOOKIN, JEFF BRACK, ALEXEI DOROFEEV, JOHN HARTON, YEVGENIY PETROV, Colorado State University — The fluorescence detector of the Pierre Auger Observatory is sensitive to primary particle composition of cosmic rays through the measurement of the depth of shower maximum, X_{max}. X_{max} as a function of energy, or the elongation rate, depends on the primary particle composition, and any uncertainty in the X_{max} measurement could lead to a bias in the interpretation of the elongation rate. One uncertainty may arise from how the detector efficiency is calibrated as a function of wavelength. The calibration of the Pierre Auger Observatory fluorescence detector is performed using a uniform 2.5m diameter light source that allows for an end-to-end measurement of all detector components. The multiwavelength calibration utilizes the 2.5m diameter light source where the output of a xenon flasher is fed into a monochromator and the monochromator selects single wavelengths across the nitrogen fluorescence spectrum to measure the efficiency of the detector. A recent change in fluorescence detector efficiency altered the energy scale of the Pierre Auger Observatory by 4%. Presented here is the effect on X_{max} due to the above change in efficiency and preliminary results from a more detailed multiwavelength calibration and its effects on energy reconstruction and X_{max}.

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