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CLOUDS EFFECT ON THE ATMOSPHERIC TOTAL COLUMN CARBON DIOXIDE RETRIEVAL
BY SPACE ORBITING ARGUS 1000 MICRO-SPECTROMETER: INTRODUCTORY STUDY**Abstract**

Carbon Dioxide (CO₂) is one of the most important greenhouse gases after water vapor (H₂O) which plays significant role in the climate process. Accurate space-based measurement of CO₂ is of great significance in inferring the location of CO₂ sources and sinks. Uncertainties in greenhouse gases (GHG) retrieval process must be minimized to accurately infer the actual amount of the atmospheric species. Clouds pose a large uncertainty in CO₂ space-based retrieval process leading, mostly, to an underestimation in the CO₂ absorption amount above the cloud layer provided that photons do not perform multiple paths. In this paper, three different cases of data collected over cloudy and clear skies by Argus 1000 micro-spectrometer were analyzed. Findings show that the CO₂ absorption in the absence of clouds is approximately 4.5% higher than when clouds are present.