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Development of a web application for dynamic analysis of the Kaguya Spectral Profiler data

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Kaguya is a Japanese lunar orbiter launched on September 14, 2007 and observed the moon for about 2 years. The Spectral Profiler (SP) on board Kaguya was a spectrometer which provided global data set of visible-near infrared continuous reflectance spectra of the Moon. GEKKO is a web-application used to visualize the data observed by SP. GEKKO displays the graph of SP spectra and tables of ancillary data with thumbnail images simultaneously taken by Kaguya imager/camera. The current version of GEKKO is very useful for viewing SP spectra, but does not include analysis functions.

The goal of this study is to develop a framework for implementing analysis functions of the SP data. For transferring the data from the client, the original GEKKO connects to the server using MapServer. However, in case of MapServer, the client-researchers can only analyze in a predetermined manner. Therefore, we prepared CGI scripts and incorporated them into GEKKO.

By using the new GEKKO system, the clients-researchers will be able to dynamically analyze the SP data. The clients can select, coordinate and add the functions according to their objectives. We prepared the basic functions commonly used for the spectral analysis, such as running average, normalization and also similarity measurement.