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Development of a repository system for upper atmosphere and space science using the WEKO

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In the present paper, we introduce a repository system for upper atmosphere and space science that has functions of data disclosure and flexible authentication.

WEKO is an open source software for repository system developed by National Institute of Informatics (NII). WEKO works on the NetCommons2 (NC2), which is a Content Management System (CMS), and is used for JAIRO Cloud and institutional repositories of academic communities and universities. In addition, WEKO is able to provide specific metadata format such as Dublin Core, Junii2 using the harvesting protocol OAI-PMH.

It is not sufficient to introduce WEKO by default for a data repository of upper atmosphere and space physics. For example, the default metadata formats are not appropriate for observation data in the field of upper atmosphere nor space science. Secondly, it is necessary to customize the functions implemented in WEKO for our use case. So we added some additional functions to improve WEKO, and we constructed a repository site for Akebono VLF Data[1]. We also plan to adopt SPASE (Space Physics Archive Search and Extract) metadata format into WEKO.

It is noted that WEKO is used not only for an open data repository but also for a closed database among specified users by introducing authentication system. We propose to apply Single-Sign-On (SSO) authentication via Shibboleth to WEKO, which can be realized by customizing NC2 layer. Because Shibboleth has already been adopted by Academic Access Management Federation in Japan (GakuNin) flexible access is available for the WEKO data.

In the presentation, we introduce our repository site, which are customized for the scientific data repository for satellite and discuss future works for further development.

References
[1] Akebono VLF/MCA Data Repository https://akebono-vlf.db.kanazawa-u.ac.jp/

Keywords: WEKO, NetCommons2, Space science, Metadata, Akebono Satellite, SPASE
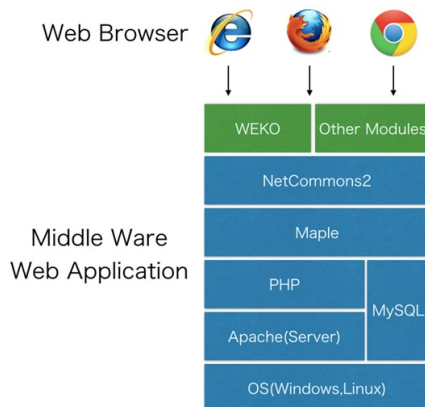
WEKO system configuration diagram