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PP	Restricted to other programme participants (including the Commission Service)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
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Abstract:

This report provides an overall impression of the status and progress made on the VESPA VAA activities (on-line part of VESPA: search interfaces, accessible services, documents, user support, etc.) during the reference period. It also provides recommendations, guidance and advises on the relevant activities and services for future improvements.

Board Reporting activity

Work package title VESPA-VA
Date of the meeting and reference period (to which the evaluation should be assessed) Reference period: PM25-PM36 Several VESPA Review Board teleconferences were held to identify and agree on the focus of the review for the reference period, and to assess the progress on the different activities.
Details of the members of the review board • Santa Martinez (ESA), santa.martinez@sciops.esa.int: chair • Tom Stein (WUSTL / IPDA / PDS), stein@wunder.wustl.edu • Joseph Mafi (UCLA / PDS), jmafi@igpp.ucla.edu • Andrea Nass (DLR /Berlin), Andrea.Nass@dlr.de • Sandrine Guerlet (LMD / Paris), sandrine.guerlet@lmd.jussieu.fr
Has the Work package met the objectives in the relevant period as described in the Description of Action? If not please provide suggestions The progress made during the second year is impressive. The number of data services available has grown from 25 to 34, being the ultimate goal the provision of 50 data services. VESPA includes many different sources of scientific data: products from observations (ex: retrieved profiles from space-based instruments), model outputs (ex from the Mars Climate Database), experimental datasets (ex laboratory spectroscopy), as well as an atlas of amateur observations. The different services cover various fields of planetary sciences, from surface data to atmospheric sciences, small bodies and plasma physics. The implementation of the SSHADE (a spectroscopic database of minerals and ice) service is apparently on track and should be available next year. In addition, during this second year, the VESPA group initiated a collaboration with ESA to implement a test EPN-TAP access on the PSA, which is important to increase the visibility of VESPA and its use by the scientific community. This point was raised in the first report of the review committee. Contacts have also been made with JPL to include for instance Cassini data products of ring observations. Progress has been evaluated mostly based on the "D6.7 - Second VESPA annual report" and on the VESPA wiki pages. Access to monthly reports is very helpful and shows the regularity of the work. Recommendations from the board for the next period: • Define a strategy to better focus the efforts e.g. identify just 2-3 types of scientific users, and try to inspire a more active engagement of their communities. There are many activities in parallel, and efforts in many directions, and it might become very difficult to measure the results and the impact in the scientific community. Furthermore, we believe that only this specialisation will allow VESPA services and tools to evolve to the maturity required to meet the dissemination and sustainability objectives. Once this is consolidated, the services could be expanded to address the needs of other scientific communities. • Organise focused user-oriented reviews and test campaigns of the VESPA search interface, data services contents and VESPA tools to improve the user experience (with scientists focused on 2-3 specific disciplines). Being the main entry point for the VESPA contents, the board believes the VESPA search interface could be more intuitive and

provide more guidance to the users (e.g. initial search form is quite complex, and there are too many acronyms, links and documents available). See detailed comments further below in "additional suggestions / findings".

- Demonstrate how rigorous VESPA is with the selection of the data services, mostly with their science data content i.e. better data description / documentation, enough documentation of modifications for processed data, limitations for using the data, reference to original data sources (with their approval when possible). Define clear requirements on the data providers based on this. A list of the available science data sets, grouped by discipline / purpose (similar to the list available in the VESPA DMP) could be linked from a welcome / brief explanation message in the VESPA search interface so that any user could quickly check if VESPA contains any data of interest for them.
- Provide some indication of how the VESPA User's Wish List is collected, prioritised and used for the selection of data services. Report the number of requests for new data services that have been received from external teams each year, and how many have been selected, along with the evaluation report from VESPA.
- Demonstrate how the sustainability objectives match the current and future needs of the scientific community e.g. identify what is useful and which parts should be continued, why and how based on the collected metrics, by organising dedicated reviews and based on the reports / surveys / questionnaires collected during the workshops and trainings. This is very important to ensure the continuation of the key VESPA services after the 4 years.

Has the Work package met the expected impact in the relevant period as described in the Description of Action? If not please provide suggestions

The VESPA team is obviously very active in enlarging the data content and disseminating the results to a broad community. It is difficult to assess the impact on the scientific or amateur community, especially on such short timescales.

The impact on the community of Virtual Observatory at an international scale is, on the other hand, very clear: thanks to the efforts of the VESPA team, Planetary Sciences are now recognized by the International Observatory Alliance committee as a major contributor to the VO. This is important for the long-term stability of the project.

On a national scale, in France, the implementation of VESPA is now recognized as an official national service: as a consequence, young researchers can now propose to contribute to develop VESPA as part as their application to an astronomer position.

Some metrics are available in the "D6.7 - Second VESPA annual report" to measure the impact on the users in terms of data access. More specific metrics (e.g. queries per science data set, type of data, most used filters) would be very useful to better assess the interests of the scientific community. This will allow to better focus the VESPA efforts and would contribute to increase the impact in the community.

Has the Work package disseminated and exploited results in the relevant period as described in the Description of Action? If not please provide suggestions

The dissemination has been carried out at several major meetings in planetary sciences (EGU, EPSC, AGU) and through dedicated workshops. The number of talks given and posters is impressive (20 in one year). During these meetings, two training sessions were also organized, although the number of participants was low (7 and 1, respectively).

As indicated in the previous report, the participants' satisfaction with regards to the quality of the dissemination materials could be used as the main indicator of the quality of the dissemination activities. A questionnaire could be made available and informal discussions with participants could be collected to indicate the extent to which the presentations / material were adequate and interesting. A summary could be added to the report of the corresponding reference period report to be assessed by the review board. Such information is not available to the board.

The VESPA team members have also made major contribution to 7 papers in a special issue of Planetary and Space Sciences.

Some additional suggestions / findings to improve the existing services are provided in Annex 1: Additional Suggestions & Findings to this report.

Annex 1: Additional Suggestions & Findings

Additional suggestions / findings to improve the existing services are provided below.

1)   VESPA General Comments

Issue No.	Status	Description	VESPA Response	Issue Date
GENERAL-001	FIXED	Information on how to become a VESPA data provider should be added to the VESPA website, including links to documents on how to get started. Documentation for data users on the services and data results is limited and should be improved.	See VESPA wiki: https://voparis-confluence.obspm.fr/display/VES/Implementing+a+VESPA+service Also available in the VESPA website / Standards: http://www.europlanet-vespa.eu/standards.shtml It is not clear why this is under "Standards", it is not very intuitive.	2016
GENERAL-002		I tried running the PlanetServer but it broke in my browser.		2017
GENERAL-003		PDS spectral library added to https://sites.lesia.obspm.fr/data-services/pds-spectral-library/ • Listed in VESPA wiki as an online EPN-TAP service • The source for the data (name our PDS Geosciences Node) was never contacted as part of the VESPA effort to create a VO data service using these data. This is not a question of ownership but rather demonstrates that the VESPA team should work collaboratively within the community. Is WebGeoCalc VOTable effort being undertaken in conjunction with PDS NAIF node or without them?		2017

2) VESPA Website

http://www.europlanet-vespa.eu/index.shtml

Issue No.	Status	Description	Response	Report
WWW-001		Helpdesk or Contact information: there is no contact information on the website, the users have currently no option to get help from VESPA. This is key to get proper feedback on the provided services throughout the project duration. There is a contact email in the VESPA search interface: support.epntap@obspm.fr but not visible from the VESPA website.	The contact email has been added to the website, but it is not very visible (bottom of the page, and quite small).	2016
WWW-002	FIXED	Participants (http://www.europlanet-vespa.eu/participants2.shtml): the page indicates that there are 17 contributing participants while one 12 are listed.		2016
WWW-003	FIXED	Standards: Typo: replace "Acess" with "Access"		2016
WWW-004		Standards: Users may not know how to use Confluence or may feel intimidated by the amount of information in the wiki, so it might be better to have a PDF version of the documents and tutorials posted on the VESPA website rather than links to the wiki. At the moment, all links are links to wiki pages (working versions of the documents), which might be difficult to follow for people not directly involved in the evolution of EPN-TAP and tutorials. It might be useful to have a link to a PDF version of each document (latest version), and a note with the status including a link to the working version (in the wiki). For EPN-TAP v2, instead of two links to parameters & parameters description, just one link to the Confluence page EPNcore v2 could be enough (https://voparis-confluence.obspm.fr/display/VES/EPNcore+v2).		2016
WWW-005		Data Services: The page "Available on day" (http://www.europlanet-vespa.eu/EPN2020_day1.shtml) contains links to the website of each data service. This information is not available from EPN-TAP Services page in the wiki, and it is very useful (https://voparis-confluence.obspm.fr/display/VES/EPN-TAP+Services).	In the webpage http://www.europlanet-vespa.eu/EPN2020_day1.shtml , the following links do not work: 1. VESPA-link opens the service in the same browser tab; it should open it in a new tag. 2. "DIP, JupiterDAM" couldn`t be opened 3. "Titan atmosphere, VEx Mag, TNOs" are in development.	2016

WWW-006		Tools: It should be obvious when following a link will take the user out of the VESPA site (external link) e.g. with little arrow next to the link.		2016
WWW-007	FIXED	Place the link to go back to the VESPA home page at the top (or make the banner at the top a link to the home page).		2016
WWW-008		Some pages on the website are opened in the same tab, while others are opened in a separate tab; make navigation as consistent as possible.		2016

WWW-009	FIXED	Tutorials, use cases
		
		• This is a link to a wiki page, that is referring the user back to the website for current tutorials (http://typhon.obspm.fr/VESPA-tutorials/index.php?page=1). Just one page with all the information would be more convenient.
		• In http://typhon.obspm.fr/VESPA-tutorials/index.php?page=1, there are several links that do not work:
		• ExPRES tutorial: http://typhon.obspm.fr/maser/serpe/MASER_Guide_v0.2.pdf
		• Magnetospheric regions automatic identification with AMDA and TOPCAT: http://typhon.obspm.fr/VESPA-tutorials/docs/AMDA-TOPCAT_Magnetospheric_regions_automatic_identification.pdf
		• PlanetServer.eu: http://es1.planetserver.eu/classic/tutorial/tutorial.pdf
		• "Other tutorials related to the CDPP tools are available here." http://www.cdpp.eu/index.php/Tutorials/tutorials.html
		• There are 2 tutorials in the Help documentation of the search interface, not linked from this page:
		
		    o EPN-TAP services and VESPA interface: Imaging spectrometry demo (Virtis/VEx EPN-TAP service)
		    o EPN-TAP services and VESPA interface: Searching and plotting atmospheric profiles (Titan/CIRS service)
				2016

WWW-010	FIXED	Publications & presentations: Link is protected, not accessible to the public.		2016

3) VESPA User Search Interface

http://vespa.obspm.fr/planetary/data/epn/query/all/

Issue No.	Status	Description	Response	Report
SEARCH-001		The review board believes that a more extensive test campaign of the user search interface and service connection with tools is needed to provide better feedback. This could be one of the main tasks of the review board for the next reference period. See recommendation in question 1 of the report.		2016
SEARCH-002	FIXED	The contextual help (?) for the different parameters should be expanded to include a brief description of the parameter (and, when possible, a list of allowed values or examples). This is very important in particular for some parameters that could have several interpretations or standard values. For example: • Measurement Type, Obs ID: The user may not know what values are allowed; some examples or list of options would be useful. • Location parameters	This is done by a including information via a simple mouse over function. In some cases a more detailed description would be useful!	2016
SEARCH-003	FIXED	Clicking on "Help" should open the help page on a separate tab. It should not replace the user´s search form.		2016
SEARCH-004		The "Help" page is too general. How do I find out what the various choices under Location > Spatial Frame Type mean? Many users may have a different understanding of these terms relative to how VESPA uses them. For this purpose, the "Help" page could include more information or a link to other relevant documentation (e.g. EPN-TAP), for details.		2016
SEARCH-005		Documentation describing the data sets is needed. There is almost no documentation describing the data sets. The users may not be familiar with the data results. **Strongly needed.**		2016
SEARCH-006		The VESPA user interface should be upgraded to handle answers from multiple data services together; this has been already identified as an extra deliverable and is considered a key enhancement by the review board to improve usability.		2016
SEARCH-007		The "help" page is more comprehensive and is very useful, however could be further improved e.g. more examples of queries (or a link to it) could be helpful: they are currently in http://www.europlanet-vespa.eu/tutos.shtml but could be also accessible from the "help" page, which is where one would go intuitively to find help along with example cases (there are only 2 examples at the bottom of the help page)		2016

SEARCH-008		The Download button should be disabled when no results (no objects met the query parameters). With the current implementation, when a dataset has zero objects that satisfy the query parameters, there still is a download button on the results page.		2016
SEARCH-009		In the actions available on services with results, it would be useful if the "Advanced Query Form" could be open with the same query already entered by the user, to be refined.		2016
SEARCH-010		Add option in the results table to reset selection; otherwise the user has to unselect one by one.		2016
SEARCH-011		Search case: CRISM data at Gale Crater: SELECT * FROM ... WHERE c1max >= 136.507841 AND c1min <= 139.11883 AND c2max >= -6.667063 AND c2min <= -4.067516 AND lower(instrument_name)= lower('CRISM'). • Only 16 products returned, while the same query on the NASA PDS Geosciences Node returns 3374 images (same TRDR image type). The EPN Resources information panel says "EPN-TAP access to the Test CRISM database" with <u>Publisher</u>: Jacobs Uni. Does this mean this is only a partial copy of the CRISM dataset? • The TIFF URL link does not produce a readable file. There is no link to the original archive format or to the metadata for any product in the results table. In this use case, the user wants to download the data for use with his/her own software, not using one of the tools pointed to by VESPA. • Tried All Data > Download but gave up after a couple of minutes when there was no indication of anything happening other than web browser tab spinning around. • Much of the default results table is blank. There is very little that describes or identifies the 16 images found. Parameters creation_date and measurement_type are blank; access_estsize seems inaccurate.		2016

SEARCH-012		Search case: VEX/MAG data at Venus; SELECT * FROM ... WHERE (lower(target_name)= lower('Venus') OR lower(target_name)= lower('2')) AND lower(instrument_name)= lower('MAG').
		
		• Results in service: VExMag_EPN20
		    ○ Access URL does not work
		    ○ Data Selection > Download returns "INTERNAL SERVER ERROR"
		• Results in service: AMDA
		    ○ Processing level: -2147483648
				2016

SEARCH-013		We have done a few tests with the search interface to evaluate it. Positive points: • The query time is very quick. • The "help" page is more comprehensive and is very useful, however could be further improved (see below). Points to be improved: • More examples of queries (or a link to it) could be helpful: they are currently in http://www.europlanet-vespa.eu/tutos.shtml but could be also accessible from the "help" page, which is where one would go intuitively to find help along with example cases (there are only 2 examples at the bottom of the help page). • We find it very interesting to include images taken by the amateur community, however the query of images of different planets returned an error for the PVOL dataset.		2016
SEARCH-014		It would be very important to be able to specify if one wants to search for model outputs, experimental data or observations. Right now it is not possible to specify it, and if used blindly it can be very confusing!		2017
SEARCH-015		How does the user know what data sets may be searched using VESPA? As mention in the report D6.2, a list of the available science data sets, grouped by discipline / purpose (similar to the list available in the VESPA DMP) could be linked from a welcome / brief explanation message in the VESPA search interface so that any user could quickly check if VESPA contains any data of interest for them.		2017
SEARCH-016		The Main Parameters section is confusing. • The layout of the fields is confusing. Top to bottom? Left to Right? What is the unlabeled field to the right of Time Selection? • If the Measurement Type is supposed to be a UCD, why not be more specific? • What is an Obs ID? Is "Obs" a word or an abbreviation? • Why are there time parameters in Main Parameters when there is also a Time section on the form?		2017
SEARCH-017		In the Location fields, what how do I use the unnamed fields (especially the one on the right)? The help does not describe this field.		2017
SEARCH-018		In the Instrument fields, what values can I use?		2017

SEARCH-019		Search case: Target = mars • Search results did not appear for more than one minute. • Results from AMDA and DARTS; what are these? There is very limited description about what data I might be getting. • No results from CRISM, Mars_Craters, or planet • pvol query returned error "Generated WHERE clause of ADQL statement" • Clicking on Display Results for DARTS resulted in an error page.		2017
SEARCH-020		Search case: Gale Crater (Mars) search Target = mars and using these Gale Crater (where Curiosity rover is) bounding box values: **Spatial Frame Type** Body Data range intersects The range between **Longitude Min** **Longitude Max** -6.667063 -4.067516 **Latitude Min** **Latitude Max** 136.507841 139.11883 No results. Adding Instrument Name = CRISM also returned 0 results.		2017

SEARCH-021		Instrument Name = CRISM
		Using only this assignment, I get 20,722 results from the CRISM resource.
		
		• This resource provides only a subset of the entire CRISM archive that contains 1.7 million images. How does a user find this out.
		• There is no information on the Resource or the data.
		• Clicking on the access_url link for first granule:
		   o Returns a TIFF image, not the actual data product
		   o TIFF image cannot be opened in standard image viewers (IrfanView, Corel PhotoPaint).
		   o TIFF image can be opened by ENVI 5.4 but does not contain proper values; instead displays grainy black and white scatter blob.
		• Selecting (highlighting) the first granule, then Data Selection > Downlad. Web page shows "waiting for vespa.obspm.fr…" for 5+ minutes and nothing happens. After about 10 minutes I was prompted to save a 1.2 MB zip file that my system (Win 10) could not open.
				2017

4) VESPA Service Connection with Tools

No further comments or suggestions for now. The review board believes that a more extensive test campaign is needed to provide better feedback. This could be one of the main tasks of the review board for the next reference period.

5) VESPA Standards Documentation

Issue No.	Status	Description	Response	Report
STD-001		One of the documents listed in deliverable D6.9 could not be found: see section 4.1, tap_sheet_tutorial.pdf.		2016
STD-002		Not all deliverables are available via http://www.europlanet-2020-ri.eu/about-europlanet-2020-ri/public-deliverables; not sure if the reason is because some of them are not expected to be public. Some references to deliverables in the D6.6 report are pointing to this link, while the deliverables could not be found (e.g. D6.6, D6.9, D11.2 or "VESPA incremental report 1").		2016
STD-003	FIXED	The SSHADE prototype (D11.6) is password protected and could not be accessed: https://pre.sshade.eu/	Credentials provided to the board	2016
STD-004		For the 3dView access to SPICE kernels (D11.4), the system is accessing the operational part of the NAIF repository (http://naif.jpl.nasa.gov/naif/data_operational.html) while access to the archived SPICE kernels might be better in some cases (http://naif.jpl.nasa.gov/naif/data_archived.html) e.g. operational area for MESSENGER only contains ORBIT (spk) while archive area contains all kernels.		2016