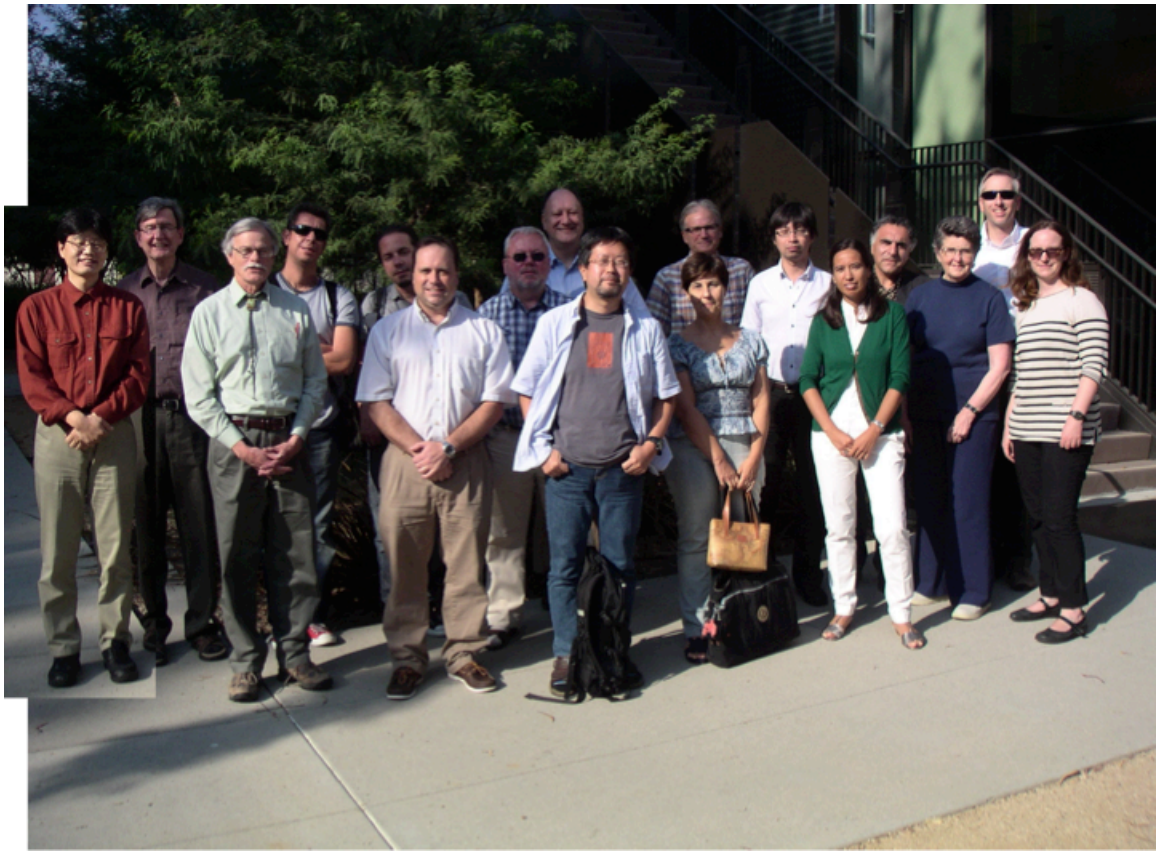
International Planetary Data Alliance Meeting (Sept. 14 –Sept. 16 2011)
Pasadena, California, USA
Meeting Minutes



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* via teleconference

Day 1, Wednesday, September 14, 2011

Opening of meeting (Y. Kasaba)

Yasumasa Kasaba opened the meeting starting with introductions. He announced the agenda and reviewed the objectives. He also introduced members of the the steering committee and the technical group (TEG) of IPDA. Yasamasa then discussed the on-going projects and mentioned that they will be summarized in the meeting.

Yasumasa identified areas for improvement including internal and external communication, interfaces to neighboring fields, and interfaces to specific projects.

Within the IPDA, he discussed communication of projects via the Newsletter. He also discussed that there also may be better schemes. He added that mailing lists and the website could be improved. He also recommended that IPDA consider submitting a report to Space Research Today to be included in COSPAR 2012.

Yasumasa discussed publication related to IPDA and asked that members inform IPDA members when publications include information about IPDA.

He also discussed the planned IVOA/IPDA meeting in Japan December 7-11, 2010 that did not occur. This topic will be discussed in greater detail later in the meeting. He reminded the group of upcoming events including COSPAR 2012. Gopala Krishna and Steve Joy offered to organize the session. The plan is to hold the IPDA meeting one week before.

Yasumasa then discussed goals for this meeting including:

- Achievement of 2010-2011 projects
- Establishment of a new management scheme for 2011-2013
- Establishment of new projects for 2011-2012

EuroPlanet (M. T. Capria)

Maria Teresa Capria discussed EuroPlanet. IDIS is the integrated and distributed information service that is part of EuroPlanet. It is one of the key projects. The IDIS portal is focused on access and interoperability. It uses VO-like access to data sets. The IDIS Structure is distributed. The IDIS coordinator is Gerard Chantuer and the deputy coordinator is Maria Teresa Capria. Specifically, the IDIS has written that they will coordinate with IVOA and IPDA.

IDIS is discussing two options for the data model based on VO concepts. IDIS is also discussing two protocol options including PDAP and TAP, developed by the Paris Observatory. A meeting was held Tuesday, as a splinter, to discuss these results.

EuroPlanet members are seeking additional funding. One possible funding approach is the FP7, European Framework Programme 7 , which funds these types of activities.. FP7 is seeking a collaborative proposal in data exploration of key science data discipline areas. In particular data., from ESAC. Maria Teresa believes we should think about it as a collaboration. A splinter meeting will be held at EPSC-DPS to discuss this. This needs to be a many institution project.

Technical Experts Group (P. Osuna)

Pedro discussed the Technical Experts Group (TEG) including the progress and coordination during the last year. The IPDA charter was approved on 2 Apr 2011. Pedro reviewed it for those members who have not seen it. He also discussed the membership

Over the last year, the TEG held two teleconferences. They were considered very valuable. They are difficult to schedule though. Pedro is worried about mailing lists not being used. We wait for the IPDA meetings to happen rather than discuss issues on the mailing list. It was discussed that there are multiple mailing lists. Members are encouraged to use the TEG mailing list at the moment.

In addition, we need to do a better job of releasing standards and we need a mechanism to indicate these on the website.

Pedro also discussed the importance of IVOA/IPDA discussions. He would like a mechanism for more formal coordination. He also wants to make sure we are coordinating enough with EuroPlanet.

The key items to be discussed at this meeting which are critical to the TEG include:

- Standardization process
- PDAP versioning (should we release as version 1.0)
- Extension mechanisms for PDAP

- Advancing the registry project
- PDS4 review
- Tools project
- How to evolve PDAP query language

There was a concern that we need to move forward on PDAP query language. Pedro would like to see what's required to move forward on this at the meeting. We also need to come out of this meeting with a plan for release of PDAP.

Finally, Pedro raised concerns over EuroPlanet adoption of PDAP.

PDAP Specification (J. Salgado)

Jesus provided an overview of PDAP. Two reviews were conducted from NASA/PDS and EuroPlanet. V1.0 of PDAP included comments from IPDA. Jesus then reviewed comments from each group.

Jesus also discussed support for GIS, query language support, pagination, and other improvements to PDAP.

Maria Teresa asked about who should submit comments. It was suggested these should remain inside IPDA.

Yukio mentioned that comments should be captured and managed including assigning a unique id to each comment. We should also be careful on versioning the documents.

PDAP already has passed v1.0. A question was raised as to whether it should it be released as v1.0. There was agreement that this made sense.

PDAP Fly-By Project (Y. Yamamoto)

Yukio Yamamoto discussed the PDAP Fly-By-Project. The goal of the project is to define PDAP classes for non-geological coordinates. It is currently a preliminary design that is being evaluated. The plan is to establish a testbed for existing missions.

It was discussed that this is an extension to PDAP. As such, it is important that it be closely coordinated with PDAP and that the PDAP leaders (Jesus and Pedro) provide some templates for extensions.

There was also a discussion regarding the alignment of the PDAP information model and the PDS4 information model. Work is needed to better align them.

In addition, there was discussion about the importance of holding regular teleconferences. As a result, the following actions were identified:

Action 1: Jesus and Pedro to produce a standard template for extensions to PDAP and pass to the fly-by-product project.

Action 2: Send out the PDAP extension for fly-by-product to the TEG mailing list.

Action 3: Pedro will pre-book the TEG meeting.

Action 4: Align PDS4 model and software classes (assigned to Jesus and Steve).

PDAP Query Language/PDS4 Mapping (S. Hardman)

Sean discussed the PDAP query language in the context of needs for PDS4. The PDS has been evaluating various query languages including those from Apache SOLR. As a result, Sean gave an overview of the PDS4 needs and discussed what is supported in PDAP already and what is needed. It was requested that example syntax be sent to the TEG. It was also suggested that the query language be expanded to become an IPDA query language.

The following action was identified:

Action 1: What are the return types for PDAP? TEG to formulate a proposal for submission to the SC for review. Also consider including other items pertinent for the SC to review prior to submission of the PDAP.

Action 2: Sean Hardman to send query language syntax ASAP to TEG.

PDAP GIS Project (N. Hirata)

Naru Hirata discussed the GIS Project. One of the main accomplishments has been to educate the Open Geospatial Consortium (OGC) on the importance of a planetary extension to the OGC standards. Naru believes this has been important result of the project. Results of this effort were presented at the LPSC last year. He also discussed efforts to develop a GIS-capability with Kaguya data.

PDAP Next Steps (J. Salgado)

Jesus Salgado reported on next steps for PDAP. As mentioned, a splinter meeting was held on Tuesday, September 13, to discuss PDAP and in particular, EuroPlanet

input. The conclusion is to produce a version 1.2. In addition, the author list should be extended. Key changes include:

- Be able to define what capabilities services have; need to define what goes into tool registry
- Create the relevant PDAP namespace; agree on a way to present the PDAP namespace
- Add spectra range as an input parameter
- Add altitude as an input parameter
- Modify MISSION_NAME
- Map to PDS4 equivalents (e.g., INVESTIGATION)

As a result, a few actions were identified:

Action 1: Jesus to update and distribute PDAP to the TEG by October

Action 2: Release PDAP under v1.0

Action 3: Generate a standard data dictionary list for PDAP; link to the registry and dictionary efforts in PDS4

Standards Project (D. Crichton)

Dan Crichton discussed the Standards Project on behalf of Gopala Krishna. The project has produced a few deliverables. The first was a list of the standards that are in use by various agencies. The second was a process for approval of standards. A document describing the voting procedure was also discussed. This document will be distributed to the Steering Committee for review and approval.

Action 1: Pedro will produce a procedure document in addition to the voting procedure.

Day 2 – Thursday, September 15, 2011

PDS4 Solicited Presentation (D. Crichton)

Dan Crichton presented on the next generation PDS implementation referred to as PDS4. Dan provided an overview of the project and its structure, discussed the timeline, the design decisions and the transition plan. The PDS project is broken into two key design groups referred to as the "DDWG" (Data Design Working Group) and the "SDWG" (System Design Working Group). The groups are composed of

personnel from across the PDS. Reta Beebe serves as the project scientist and Dan Crichton services as the project manager for the PDS4 upgrade.

The development is broken into a series of incremental builds that continue to integrate the deliveries from each of the design groups towards a system. To date, the PDS has completed build 1a, build 1b, build 1c, and build 1d. Reviews have occurred for each of these builds with "1b" being an internal review, "1c" being an IPDA review, and "1d" being a community review. The build 1d review is currently underway. Build 2 will be the first operational release of PDS4. An acceptance review is currently planned for the end of November and will be conducted by the PDS Management Council.

The design of PDS4 includes both an overhaul of the PDS data standards as well as movement of the PDS software infrastructure to a Service Oriented Architecture implementation. The PDS data standards will define both the format and data definition for products. The data formats will be based on four fundamental data structures. The data definition will be captured in XML based on a rigorous information model.

PDS is also working through the transition and migration planning. Existing PDS3 missions will continue to deliver data based on the PDS3 standard. New missions funded after November 1, 2011 will be required to archive their data in PDS4. For existing missions, PDS will provide the necessary software to support delivery and integration of both PDS3 and PDS4 data.

In addition to transition planning, PDS is also working on migration planning of existing PDS3 archives to PDS4. This will be executed over the next few years.

The current plan for build 2 is to deliver in October 2011, review in November 2011, and plan to release in January 2012.

PDS4 Prototype Project (S. Hughes)

Steve Hughes provided an overview of the PDS4 Prototype Project that has been reviewing the PDS4 standards. A key activity this year was review of the PDS4 Build C release. The project carried this out in two phases. Phase I included review of the PDS4 standards documents. Phase II included testing of the PDS4 products. The IPDA response was quite significant to PDS. It provided numerous suggestions that are being taken up with the PDS4 implementation teams. It was suggested that efforts should continue on testing and prototyping the standards.

Steve also provided a background presentation on the detailed design of PDS4 data standards including the information model, fundamental data structures, core data product definitions, data dictionary, PDS4 XML schemas, and the standards

documentation. The current implementation team is focusing on delivery of PDS4 data standards as part of the build 2 delivery due in October.

PDS4/IPDA Next Steps (R. Beebe)

Reta Beebe led a discussion on PDS4 to ensure that the PDS is considering the needs of the IPDA and the international community. Prior to this discussion, Reta sent out the following questions:

1. Will your group use PDS4 standards?
2. What tools need to be in place to support functions you need for ingesting PDS4 data?
3. If you are using PDS3 standards, will you adapt a PDS4 to PDS3 conversion?
4. Do you have a priority set of capabilities that need to be in place early in PDS4?
5. Are there specific issues that should be addressed before PDS4 can be internationalized?
6. Are there recommendations on how we can educate the community on PDS4?
7. Are there other questions to consider?

Reta emphasized two key points:

- Migration both forward and backward is important
- We can capture PDS3 data underneath a PDS4 structure

The discussion affirmed that groups are planning on moving to PDS4 when it is ready. BepiColombo will be the first PSA mission to be archived under PDS4.

One of the key discussions was around tools. We will need a converter between PDS3 and PDS4. Users may be more comfortable viewing data in PDS3 with ODL and likewise existing toolkits like VICR will need to be upgraded. Other tools include validation, viewers, etc.

One of the need areas to be worked is ensuring that the validation rules for a PDS4 product are consistent. This has been an on-going issue on international missions.

Other discussions included ensuring that the community is aware of the timeline and the plans for PDS4. This will be discussed during the future planning session for the IPDA Steering Committee.

LESIA, Observaoire de Paris Overview (B. Cecconi)

Baptiste Cecconi presented an overview of activities he is involved with at the Observaoire de Paris. This includes development of automated analysis tools, in particular, to support investigation of space physics data. In addition, they are involved in creating the VO-Paris as an interoperable prototype using the SAMP protocol to send a FITS cube to a viewer. They are also developing a name resolver for solar system objects as well as sharing osculating parameter data for these objects. This was discussed as a potential IPDA service on Tuesday at the splinter meeting.

There are several data sets that are new including:

- Cassini RPWS data (HFR level 2, HFR Browse Plots)
- Stereo/Waves Level 3
- Cassini/RPWS/Langmuir probe (not in PDS)
- MSWiM: Solar wind project data
- Voyager/PRA/Hi-band: Radio dynamic spectra at Jupiter

ASI Report of Activities (M. T. Capria)

Maria Teresa Capria discussed the archiving and mission support activities for ASI. ASI is involved in several missions with ESA and NASA. Ultimately, all data is sent to the PDS or PSA for planetary missions that require archiving.The ASI Science Data Center was established in Nov 2000. The principal task is to support the management of long-term preservation of scientific data.

Key data center features include:

- Use of international standards (including PDS, FITS, NASA-OGIP, etc) for all archives
- Hosted by ESA-ESRIN
- ASIs providea science support

ASDC hosts data from VIMS (Cassini), VIRTIS (Rosetta) and VIRTIS (Venus Express). Currently, the ASDC is looking to appoint an expert in planetary science. They are also looking to integrate with the IVOA and EuroPlanet.

M.T. Capria will oversee efforts in dealing with data fusion and data analysis not covered by usual instrument team funding. There is also interest in putting together a more research-oriented agency like JPL vs. a political organization.

CPP, LESIA, IPS

Alain Sarkisian discussed archiving activities at CNES. Work is performed at several laboratories involved in data archiving and data systems development. CDPP is a principal site for this activity. They are involved in Europlanet activities. There is a

current objective to consolidate existing databases and to deliver a Solar System Data Portal for the IPSL. Supporting data includes Mars Express, Venus Express, Cassini-Huygens, ISS, SOHO, PICARD, Rosetta, Lab Experiment, Climate Models, and Chemistry Models. Several of the data sets are also in PSA and PDS under PDS3.

They are also involved in developing the IDIS Atmospheres Node as well as IVOA and developing of the VO-SCAT Sun-Climate portal.

Alain also discussed the importance of promoting the IPDA though publications. For example, he just competed a book chapter that mentions IPDA.

DLR Activities – Thomas Roatsch

Thomas Roatcsh discussed activities at DLR, particularly of the missions in which they are involved. The major archiving activity is Mars Express and the HRSC camera. This makes up a substantial part of the current PSA (50%). They have delivered to the PSA including radiometrically calibrated data, map projected data, etc from 7 years in orbit. They have also released it to the PDS as well.

Venus Express data has been delivered from Venus Monitoring Camera 5 years of data. It is available through the PSA and PSA/PDS interoperability activity.

They are also involved in Cassini support including delivery from the ISS instrument. They are also working with two German cameras providing support to deliver local and global mosaics, digital terrain models and maps to UCLA.

Currently, they are expanding beyond camera data to laser data and supporting this for Bepi Columbo. They will deliver raw, calibrated and higher order data.

China Activities (Y. Kasaba)

Yasumasa Kasaba talked with Louis from the IPDA in China. Progress is very slow as China is setting up their PDS-compatible node. Beyond this, there was not much more to report.

Russian Activities (D. Crichton/R. Beebe)

Dan Crichton and Reta Beebe reported on recent interactions with the Russians. Two individuals, Oleg Batanov and Ninel Smirnova, will be added to the TEG to support PDS4 and other technical interactions. No change at this time to the IPDA Steering Committee membership.

NASA Activities (R. Beebe)

Reta Beebe provided an overview of NASA activities focusing on, in particular, the funding process. The National Academy of Science plays a critical role in developing a study report that is used by NASA leadership to fund new mission starts. The Academy is funded separately and therefore serves as an independent advisory committee of scientific volunteers that is able to advise NASA and congress.

Reta also discussed progress towards PDS4. She showed missions under PDS3 and those coming towards PDS4 including a NASA policy that new missions will be archived under PDS4.

UK Space Agency (P. Allan)

Peter Allan discussed activities in the UK Space Agency. In particular, he discussed the International Space Innovation Centre. It is a mixture of private sector, public sector and government agencies. It contains links to extensive archives of astronomical, atmospheric and earth observation data. There is a plan to process and archive Earth Observation data in the future.

The UK Space Agency uses ESA or NASA for planetary science archives. There are also extensive activities in developing "Grid" access used in astronomical and atmospheric/Earth Observation data systems.

JAXA Activities (Y. Yamamoto)

Yukio Yamamoto discussed the status of archiving at the DARTS lab at JAXA. This included challenges for interoperability, status of missions, and collaborative projects that JAXA is involved in. He discussed Hyabusa, SELENE, and Akatuki (Venus Climate Orbiter). VCO failed to insert into orbit around Venus.

He discussed whether SELENE should be in PDS3 or PDS4.

Future missions include:

- Hayabusa-2 (Sample return mission from an Asteroid)
- BepiColombo MMO (Mecury Mission)
- Sprint-A/Exceed
    - Discussion on PDS design will start soon.

ESA Activities (S. Martinez)

Santa Martinez presented on ESA archiving activities and the Planetary Science Archive (PSA).

The PSA follows a well-defined process of receiving data sets from the PI teams, following peer review, performing internal validation and the ingestion of the data. It is critical that the data is compliant to their tool set otherwise data will not be successfully ingested. They have about 13 TBs of data online in a centralized system. The PSA is organized into two teams that cover Data Handling and Development.

Santa indicated that the PSA team is involved in many missions including Huygens, Venus Express, Rosetta, Mars Express, etc. For Rosetta, validation has been a major issue; however, many of the issues are now addressed. Multiple validation tools continue to be an issue and should be an area of improvement in PDS4.

VEX continues to be a good example of interoperability.

Regarding PDS4 development, PSA has played a critical role Santa also discussed the involvement of PSA in IPDA both on data and technical standards development. In addition, she mentioned their involvement in the PDS 2010 system review in June. BepiColombo will proceed with PDS4

Action 1: An action was identified to discuss the requirements on validation to ensure consistent validation tools are developed. This will be folded into the PDS4 prototyping project. (Santa Martinez).

Activities at CSA (V. Hipkin)

Vicky Hipkin presented on the Canadian Space Agency (CSA). CSA was started in 1962 supporting the first Canadian satellite, Alloutte (NRC). They work on several international efforts including NOZOMI (JAXA), Phoenix (NASA) and MSL. They received stimulus funds in 2009 for Lunar Rovers, Mars Lander, and other exploration technologies, mostly in the engineering area. The idea is to develop a fast prototyping program resulting from stimulus funding for future planetary missions. CSA is also working on ExoMars designing the MATMOS instrument.

Currently, there is no data policy. A working group has been established to explore a new policy. Vicky expects that this will take a few years. The policy is looking to cover all science areas in earth, planetary, astronomy, and solar physics. She expects there will be a minimum expectation for each new mission to have a data management plan, and to plan to release data to the public. Consistent with the IPDA approach, they believe that Canadian data should remain in CSA

Action 1: Vicky accepted an action to help us find someone who could join the technical group.

Day 3 – Friday, September 16, 2011

Update on the IVOA (P. Osuna)

Pedro Osuna provided an update on the International Virtual Observatory Alliance (IVOA) on behalf of Christophe Arviset. Pedro provided an introduction that included the structure of the IVOA. IPDA members were interested in understanding the role of the executive committee and the working groups. The executive committee meets every three months. The technical committee meets every six months. The working group meetings include approximately 80-100+ people.

Pedro also discussed the IVOA architecture and the related standards activities. He outlined a number of synergistic areas including:

- VOTable (used by PDAP)
- SAMP- Simple Application Messaging Protocol
- TAP – Table Access Protocol
- Need for updates to better address IPDA needs
- Commonalities among data access protocols: SIAP, TAP, SSAP, SLAP, PDAP
- Commonalities for IVOA and IPDA resource registries
- Other areas: VOSpace? Utypes?

Pedro discussed IPDA in contrast to IVOA. He would like to see more of the planetary science community involved in the IPDA technical activities. He also suggested that we should split the Steering Committee and Technical Experts Group (TEG) activities more.

There was also a discussion regarding the IVOA handling of documents. There is an IVOA document coordinator that is responsible for publishing the documents on the IVOA website. Pedro felt that IPDA could do a better job of organizing its documents so their status can be easily defined.

It was discussed that this topic will be revisited later when looking at IPDA collaborations.

Registries Project (D. Crichton)

Dan Crichton presented the status of the registry implementation project. The project completed two deliverables including a specification document on registries and a registry implementation on the planetarydata.org website that was used to register tools. A discussion regarding the prototype ensued and it was discussed

that the registry should be separated into service, application/website and tool registries.

An additional discussion also took place regarding the role of registries, PDAP, and search across IPDA data collections. The PDS, as part of PDS4, is developing a search infrastructure that will harvest data collections and store the metadata results in a local registry. That will be used to develop an index to support search. It was discussed that PDAP could play a key role in this implementation if it could support and return a search result through a common protocol.

Tools Project (T. Stein)

Tom Stein presented the status on the tools project. The project captured definition of tools from the IPDA members and worked with the registries project to register them. Tom considers the project closed. Additional efforts will be folded into the next registries project including the separation of tools, services and websites/applications.

Management Changes for the IPDA (Y. Kasaba)

As his term has ended, Yasamas Kasaba nominated Dan Crichton as chair and Alian Sarkisian as the deputy chair. Both were approved.

Future planning for the IPDA (D. Crichton)

- Standards Process

  Dan Crichton passed out the voting policy. Pedro Osuna asked whether it is a policy or a procedure. It was clarified that the document is a policy. A process document will be generated with the results of the procedure produced by the Standards Identification Project.

  Dan Crichton called for a vote on the voting procedure. It passed with three liens with a grammatical change, clarification on the role of abstentions, and clarification on the member groups.

- Existing Projects (2010-2011)

  The following existing projects were reviewed.

PDS4 Prototype Project	Steve Hughes
PDAP Extension	Jesus Salgado
PDAP Fly-by Products	Yukio Yamamoto
PDAP Query Language	Steve Hughes
GIS Project	Naru Hirata
Registry Implementation	Dan Crichton
Standards Identification	Gopala Krishna
Tools Identification	Tom Stein
Ancillary Data Standards	Idle State

- New Projects (2011-2012)

  Of the current 2010-2011 projects, the Standards Identification and Tools Identification were closed. The PDAP Extension, Fly-by-Products and Query Language were combined. The Ancillary Data Standards was reactivated as a "fact-finding" project to understand geometry needs both in terms of archiving and in terms of search/query. The Query Language project was expanded to cover all IPDA. The Registry Project was expanded to include some elements of the tool efforts as well as the registry architecture, requirements and implementation. Finally, a new project to improve the website including the navigation and content was approved.

  Below is the list of approved projects along with the project leader.

PDS4 Prototype Project	Santa Martinez
PDAP Development and Coord.	Jesus Salgado
IPDA Query Language	Steve Hughes
Registry Development and Coord.	Sean Hardman
Website Development	Emily Law
Geometry Requirements	Chuck Acton

- Web Site

  The current website was discussed. There are several areas of improvement that would help IPDA, in particular, communicating and distributing key standards/documents. In addition, better use of the wiki tools was discussed.

  A related topic included discussion on the use of mailing lists. The mailing lists are not being used as effectively as we would like; in particular, for technical discussions. IPDA members were encouraged to use the ipda_teg@googlegroups.com group frequently for questions.

- Location of next Steering Committee

  The next Steering Committee will be held in India. There was discussion about whether to hold the meeting in Mysore or in Bangalore. Kasaba and Crichton followed up with Gopala Krishna to discuss initial arrangements. Gopala has proposed that the meeting be held in Bangalore prior to the COPSAR meeting. This is approximately July 9-13, 2012. Details will be finalized once the COSPAR schedule is published. COSPAR itself will be held the following week, July 15-20, in Mysore, India.

- Key Meetings

  The IPDA will be involved in several meetings this next year. This includes EPSC-DPS 2011 in Nantes, France (October 2011), PV 2011 in Toulouse, France (Nov 2011). AGU 2011 in San Francisco, CA, USA (December 2011), LPSC in Houston, Texas, USA (March 2012), and COSPAR 2012 in Mysore, India (July 2012).

  Tom Morgan discussed planning for AGU 2011 in San Francisco in December. NASA has secured a booth and suggested that it be expanded beyond PDS to include both the PSA and IPDA. A few IPDA members are planning to be present. This will be discussed and coordinated further in Nantes, France at the upcoming DPS meeting.

- Publications

  Alain Sarkisian emphasized that publications from the IPDA members are very important. Several members are already writing papers and they should include IPDA. Alain will help work this as part of his deputy role this next year.

- Collaborations with other groups

  The key groups discussed were the IDIS/EuroPlanet and the IVOA groups. A discussion will occur between IPDA and IDIS/EuroPlanet at the upcoming DPS workshop in Nantes, France.

  Regarding the IVOA/IPDA discussion, Maria Teresa reminded the IPDA that she presented to the IVOA a few years ago. Dan Crichton asked what the purpose of the meeting would be and what should be the end goal. Pedro agreed to help work with Dan on this.

- Action items

  The action items from the meeting were reviewed and are appended to the minutes.

IPDA ACTION ITEMS

1. Review TEG membership and let Pedro/Dan know if out of date (All).

2. Produce a standard template for extensions to PDAP and pass to the fly-by-product project (Pedro Osuna, Jesus Salgado).

3. Send out the PDAP extension for fly-by-product to the TEG mailing list (Yukio Yamamoto, Jesus Salgado).

4. Pre-book the TEG meeting every two months and to the TEG (Pedro Osuna).

5. Align PDS4 model and software classes in PDAP (Jesus Salgado, Steve Hughes).

6. What are the return types for PDAP? TEG formulate a proposal for submission to the SC for review. Also consider including other items pertinent for the SC to review prior to submission of PDAP. (Jesus Salgado, Pedro Osuna).

7. Generate an IPDA Data Dictionary service (Sean Hardman, Steve Hughes).

8. Add the new Russians to the IPDA TEG (Dan Crichton, Pedro Osuna).

9. Develop a project for validation rules for PDS4 (Santa Martinez, Steve Hughes).

10. Identify someone who could join the technical group from CSA (Vicky Hipkin).

11. Review the mailing lists organization to make sure it is an effective tool (Dan Crichton, Alain Sarkissian, Pedro Osuna).

12. Distribute the voting procedure (Dan Crichton).

13. Send out Steering Committee plans for 2012 (Dan Crichton).

14. Put together a structure for PDAP with a set of goals (Jesus Salgado).

15. Explore addition of new countries (Poland, etc) (Alain Sarkissian).

16. Tom Morgan will lead development of the IPDA/AGU planning; will meet in Nantes.

17. Alain Sarkissian will coordinate publications regarding the IPDA.