



1ST WORKSHOP ON
LONG TERM PRESERVATION OF
EARTH OBSERVATION SPACE DATA

ESA/ESRIN 27TH - 28TH MAY 2008

WORKSHOP REPORT

CHANGE LOG

Reason for change	Issue	Date
First emission	1.0	7 August 2008

CHANGE RECORD

Issue: 1.0

Reason for change	page(s)	Paragraph(s)
First emission	All	All

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1. ABSTRACT

On the 27th and 28th of May 2008 a workshop on the Long Term Data Preservation (LTDP) of Earth Observation data was held at ESA/ESRIN premises. The workshop was addressed to all European (and Canadian) EO data owners, data providers and archive holders with the aim to discuss and develop a joint strategy to move ahead technically and programmatically concerning the Long Term Data Preservation of EO data. The workshop constituted a fundamental milestone in the Long Term Data Preservation initiative which ESA is coordinating, with the involvement of all the European EO stakeholders, through the activities of a dedicated LTDP working group (participants: ASI, CNES, CSA, DLR and ESA) formed within the Ground Segment Coordination Body (GSCB).

The need to “Preserve today’s science records (data, publications) as well as their context in order to preserve the future of science” was recognized and it was acknowledged that no organization can provide sufficient solutions for digital preservation in an isolated way in the long term and hence there is a strong need to share costs and efforts and to identify commonalities. The importance and the benefits of a coordinated approach and of an open collaboration, having the overall European EO data set preservation for any future analysis as common goal, were unanimously recognized.

During the workshop the Draft European LTDP Common Policy/Guidelines generated by the LTDP working group to be used as a starting point for the implementation of a European LTDP System/Framework having the goal to preserve the whole European EO data set, as defined in the Policy/Guidelines, was presented. These Common Policy/Guidelines refer to several areas related to the Long Term Preservation of EO data (archives maintenance and data integrity, archives operations, data security, data access and interoperability, reprocessing, standardization and archived data exploitation) and should be intended as recommendations (partial adherence could be implemented in the short term and full adherence should be pursued in the mid-long term period). The cooperation in LTDP should aim at the progressive application of the agreed European LTDP Common Policy/Guidelines and at a progressive joint:

- Technology and methodology development.
- Standardization activities in close link with international bodies.
- Implementation of operational solutions.
- Data exploitation.

The result of this cooperation would be an European LTDP System/Framework consisting of heterogeneous components and entities cooperating to ensure an harmonized preservation of the European EO Space Data Set. The System/Framework would be distributed and open to all possible members, would follow a progressive implementation based on a stepwise approach (short, mid, long-term activities) and should be sustained through a cooperative (multi-source) programmatic and long term funding framework.

The public and private EO data owners and archive holders which were present at the workshop participated actively during the two days and presented their current & planned approach to maintain their data archives and their position versus the draft European LTDP Common Policy/Guidelines. All the participants recognized the European LTDP Common Policy/Guidelines as a first good starting point for moving ahead in LTDP and ease cooperation, supported the current initiative of the LTDP working group and recommended that ESA should trigger and coordinate its following steps.

Several participants highlighted the need of concrete steps for the future and recommended the generation of proposals on the way forward and the consolidation of guidelines from the LTDP Working Group to trigger an alignment by the different entities. The need to define funding sources for the LTDP was also considered as a fundamental point together with the need to maintain awareness on the LTDP issue through future workshops in order to get also feedback on status of implementation and continue collaboration. The support from governments was identified as a key aspect to guarantee preservation of

data with reduced economic commercial value (but with high scientific value). The outcome of the workshop was summarized in a set of recommendations concerning cooperation and harmonization at European level in the EO Long Term Data Preservation field.

2. ANNEXES

Annexes are:

- Annex 1 : The workshop agenda;
- Annex 2 : Presentations template contents;

Presentations are available on <http://www.earth.esa.int/gscb/>

3. WORKSHOP

3.1 Introduction and Objectives

The need for accessing historical Earth Observation (EO) archives strongly increased in the last ten years, mainly for long term science and environmental monitoring applications. This trend is likely to increase even more in the future in particular for the growing interest on global change monitoring which is driving users to request time-series of data spanning 20 years and more and due also to the need to support the United Nations Framework Convention on Climate Change (UNFCCC). Content of EO data archives is extending from a few years to decades and therefore their value as a scientific time-series is continuously increasing. Hence there is a strong need to preserve the EO data without time constraints and to keep them accessible and exploitable. The preservation of EO space data can be also considered as a responsibility of the Space Agencies as they constitute a humankind asset.

The large amount of new Earth Observation missions upcoming in the next years moreover will lead to a major increase of EO data volumes to be archived. This fact, together with the increased demands from the user community, marks a challenge for Earth Observation satellite operators, Space Agencies and EO data providers regarding coherent data management and optimum availability and accessibility of the different data products. This challenge leads to the need for a coordinated and coherent approach at European level in order to guarantee the preservation and accessibility of all the European EO space data. Harmonization, cooperation and sharing are key aspects in this area and should be pursued at the maximum extent for the benefit of the user community. Even if the issue has been addressed in many different ways and by many different groups, the preservation and easy access of the whole European EO space data cannot be today guaranteed. In fact:

- Current EO data preservation approaches are still mostly limited to the satellite lifetime and few years after.
- More and more EO missions data can be called 'historic' and more and more operators are faced with the decision if and how to preserve these data.
- The data volumes are largely increasing.
- EO data preservation policies, if existing at all, are different for each EO mission, each operator or Agency.

To respond to the urgent need for a coordinated and coherent approach for the long term preservation of the European EO space data, ESA is proposing, through the activities of a working group formed within the Ground Segment Coordination Body, draft European Long Term Data Preservation Common Policy/Guidelines and a Cooperation Scheme (mainly identifying possible cooperation areas) for the implementation of an European LTDP System/Framework with the aim to guarantee the preservation of the complete European EO space data set. The objectives of the LTDP workshop were to involve all European EO data owners, data providers and archive holders (including entities with ownership or license to distribute EO data in Europe) with the goal to:

- Present the status of the activities of the LTDP working group, the draft LTDP Common Policy/Guidelines and the Cooperation Scheme.
- Collect and exchange information on participants LTDP policies and technical approaches.
- Collect feed-back on the draft European LTDP Common Policy/Guidelines and Cooperation Scheme.
- Strive deriving common recommendations for a European LTDP common approach/system.
- Guide the ESA approach for its EO LTDP context and identify sharing opportunities.

- Assess the impact of the proposed European LTDP Common Policy/Guidelines to each archive/data owner.

3.2 Organization

The workshop was organized to run on two days (the detailed agenda is in Annex 1) and was split into the following sessions:

- 1) **Introduction:** Welcome and workshop objectives, European Earth Observation Long Term Data Preservation benefits, challenges and objectives.
- 2) **Session 1: European Initiatives on Long Term Data Preservation.** The session included presentations from:
 - a. Alliance
 - b. European Commission
 - c. Science and Technology Facilities Council (STFC)
- 3) **Session 2: LTDP Working Group First Results.** The session included two presentations from ESA on behalf of the working group on:
 - a. Goals, European EO Space Dataset & Draft European LTDP Common Policy/Guidelines
 - b. Ideas on LTDP Cooperation Scheme & Ideas on Implementation Plan
- 4) **Session 3: Long Term Data Preservation of major European and Canadian Missions and implication analysis of European LTDP Common Policy/Guidelines.** The session included several presentations (see Annex 1). Each presentation had a duration of 15 minutes and was prepared using a template distributed with the invitation to the workshop and also made available through the workshop web site (see Annex 2).
- 5) **Session 4: Workshop wrap-up and discussion.**

3.3 Participation

All European and Canadian EO satellite data owners/providers and archive holders were invited to the workshop. A total of 27 organizations have been participating.

These organizations are:

- **International Organizations, Governmental Entities and Space Agencies:** ASI, British National Space Centre (BNSC), CNES, DLR, ESA, Eumetsat, European Commission, INTA, Swedish Space Corporation (SSC).
- **EO data owners/providers and archive holders:** CDTI, DEIMOS Imaging, DMC International Imaging Ltd, Eurimage SpA, Euromap GmbH, Finnish Meteorological Institute, Infoterra GmbH, Infoterra Ltd UK, Kongsberg Satellite Services, NEODC/BADC (RAL), RapidEye, Spot Image SA, Vito.
- **Invited presenters:** Alliance for permanent Access, STFC.
- **Others:** EADS Deutschland GmbH, Numrax GmbH, Telespazio.

4. OUTCOME

The following sections provide a summary of the main items discussed during the workshop sessions as derived from the presentations and from the feedbacks/comments of the audience.

4.1 Workshop introduction and European EO data preservation benefits, challenges and objectives

The need and benefits to preserve the EO space data without time constraints, to keep them accessible and exploitable and to have a coordinated and coherent approach at European level in order to guarantee their preservation and accessibility were highlighted and were considered as a starting point for the workshop.

ESA already carried out several consultations with its member states and with the Ground Segment Coordination Body (GSCB) in the last years to discuss a possible strategy for the long term preservation of EO data. The consultations led to the creation of a LTDP working group within the GSCB to start a discussion and to develop a joint approach with the involvement of all the European EO stakeholders to move ahead technically and programmatically concerning LTDP of EO Data. The main goals of Long Term Data Preservation were presented:

1. Preserve the European (including Canada) EO space data set for an unlimited time-span.
2. Ensure and facilitate the accessibility and usability of the preserved European (including Canada) EO space data set.
3. Through the implementation of a cooperating/ harmonized distributed solution (European Long Term Data Preservation System/Framework):
 - o based on the application of the European LTDP Common Policy/Guidelines.
 - o sustained through cooperative (multi-source) long term funding schemes.
4. Possibly ensure the coherency with the preservation of other non-space based environmental data and international policies.

It was stressed that a European Long Term Data Preservation joint initiative can be beneficial for the different organizations in order to:

- Highlight internally the importance and increase the awareness on LTDP issues.
- Plan future funding schemes for EO data LTDP.
- Ease and secure the preservation and access of the own EO data benefiting from proven technologies, procedures and approaches.
- Cooperate in:
 - o technology development,
 - o standardization activities,
 - o operational solutions,
 - o data exploitation methodologies,for LTDP cost effective solutions.
- Have the possibility to insert data sets, beyond the mission funding scheme, into the cooperative LTDP System/Framework.

4.2 Session 1: European Initiatives on Long Term Data Preservation

The fact “the preservation of today’s science records (data, publications) as well as their context is preserving the future of science” and the need to preserve information & knowledge (not just “the bits”) and to manage knowledge to keep archives alive through time were highlighted. It was stressed that preservation must be intended as a process, not a one-time event and that it can be very expensive leading to the need to share costs. No organization can in fact provide sufficient solutions for digital preservation in an isolated way in the long term and hence there is a strong need to share costs and efforts and to identify commonalities.

Several activities in Europe for the preservation and curation of science records are funded through the European Commission FP6 and FP7 programmes (e.g. CASPAR, PLANETS, DPE, etc) as highlighted in the EC presentation. Current EC calls are addressed to the exploration of the possibilities offered by new ICT to consider new approaches to digital preservation.

The utilization of the Open Archival Information Systems Reference Model (ISO 14721) was suggested for general conceptual framework and terminology and the need of a European Digital Information Infrastructure was highlighted to address the following issues:

- Identification of core physical digital archives/repositories OAIS-compliant to ensure proper archiving, interoperability and long-term preservation.
- Set-up of a framework for metadata, for persistent identifiers and possibly other standards.
- Availability of cost-effective preservation methods and services.
- Definition of common framework of principles and guidelines for management of access and rights.
- Creation of a financial mechanism for developing and testing implementation tools, techniques and services, and for strengthening collaboration and training.
- Availability of certification service providers, accredited according to common European accreditation mechanism.

The ALLIANCE for Permanent Access expressed the intention to contribute to the realization of this infrastructure.

4.3 Session 2: European EO Space Dataset, Draft European LTDP Common Policy/Guidelines, Ideas on Cooperation scheme and Implementation Plan - Summary

It was highlighted that Long Term Data Preservation must be seen in a very long term prospect and should be intended as a permanent and mission independent activity with a timescale around 15-20 years to start with. The European EO space data set to be preserved should consist of all the data from missions or instruments owned by European Member States (public or private organizations) and of data over Europe from non-European Member States missions or instruments available through European entities agreements (e.g. ESA Third Party Missions). An initial data set, subdivided in six main data categories starting from the Sentinels group concept, has been already identified.

A fundamental aspect clarified in the session is that Long Term Data Preservation includes data archiving, processing, access and exploitation aspects but the access to the preserved data shall respect the individual

entities applicable data policies. This means that Data Access Policies are not part of the European LTDP Common Policy/Guidelines.

It was also highlighted that archived data need to contain all the elements necessary to be accessed, used, understood and processed to obtain higher level products (and this means preservation of raw data and/or Level 0 data, global or higher level products when systematically generated as part of the mission requirements and/or reprocessed, metadata and browse images when generated, spacecraft ephemeris, auxiliary data, CAL/VAL databases whenever available, mission related documentation, processing algorithms description and processors).

The Draft European Long Term Data Preservation Common Policy/Guidelines were presented and consist of seven main elements:

1. Archives maintenance and data integrity
2. Archives operations
3. Data security
4. Data access and interoperability
5. Reprocessing
6. Archived data exploitation
7. Standardization

It was clarified that the cooperation in the EO Long Term Data Preservation field should aim at the application of the European LTDP Common Policy/Guidelines (with a partial adherence in the short term and full adherence to be pursued in the mid-long term) and at a progressive joint:

- Technology and methodology development.
- Standardization activities in close link with international bodies.
- Implementation of operational solutions.
- Data exploitation.

The result of this cooperation would be an European LTDP System/Framework consisting of heterogeneous components and entities cooperating to ensure an harmonized preservation of the European EO Space Data Set. The European LTDP System/Framework would be distributed and based on the contribution of European EO Space data owners through their infrastructure and in accordance to the European Long Term Data Preservation Common Policy/Guidelines. The System/Framework, sustained through a cooperative (multi-source) programmatic and long term funding framework, would be open to all possible members and would follow a progressive implementation based on a stepwise approach (short, mid, long-term activities).

It was also clarified that Long Term Data Preservation addresses activities of different scales and priorities and therefore a European Cooperation implies short, mid and long term actions and has to be integrated in a broad strategic view. Short term actions are needed to reinforce entities internal LTDP policies via European agreements/policies, to reinforce cooperation between agencies (methodology, standardization, share of information, cross participation in reviews, etc) and to define the future organisation of the European LTDP System/Framework in a very long term perspective. A consistent LTDP funding scheme for all members should be pursued in this phase.

In the mid term the cooperation could be strengthened by common activities (share of solutions and systems, interoperable network of archives, coordination of common developments, adoption of standards, etc) with the aim also to improve the operational services according to user needs (i.e. Climate changes monitoring operational systems, etc.).

In the long term the cooperation could result in an European LTDP System/Framework consisting of an effective shared infrastructure between the different entities with common and shared access points, interoperable and transparent data access and infrastructure, unique network of data, shared resources for data reprocessing and products generation, common and harmonised security levels and layers. In this phase an extension of EO data archives also to other types of data needed for improving operational services according to user needs could be implemented.

4.4 Session 3: Long Term Data Preservation of major European and Canadian Missions and implication analysis of European LTDP Common Policy/Guidelines.

Several presentations were held during the third session of the workshop. This section provides a summary of the main items discussed during the session as derived from the presentations and from the feedbacks/comments of the audience during the session itself.

Public EO data owners (ASI, CNES, DLR, ESA, Eumetsat) fully supported the European LTDP System/Framework and the Draft European LTDP Common Policy/Guidelines.

The importance of standardization was highlighted and it was considered, for further evaluation and analysis, the possibility for public agencies to take care of historical data from commercial missions if these data are not considered worth to be preserved by the owning entities. The need to increase awareness on the LTDP issue at all hierarchical levels, to clearly define the way to proceed further in the LTDP field and to have concrete procedures and policies was also expressed.

The need to take care of LTDP early in the development phase of the missions (to avoid future extra-costs and efforts in preservation activity), to optimize the solutions and costs and to preserve not only data but also processing capabilities was highlighted. The draft European LTDP Common Policy/Guidelines identify all the subjects and matters of LTDP and therefore a common understanding and possible agreement on them can open the door for a closer cooperation between data holders. The necessity of a long term involvement on the different subjects to create future standardized and interoperable services and the relative urgency to find solutions (consolidation of archiving, reprocessing and data access services, etc), due to the fact that several missions are at end of life, was also put in evidence.

It was highlighted the importance to continue and intensify the cooperation on LTDP topics (standardization, technology, engineering and operations) to improve and harmonize data access for services in various application domains, to improve data archiving and to guarantee long term availability of EO space data. Further stimulation of EO space data usage, especially for historical data, was also considered a main issue together with the need to standardize EO products specifications and formats and to provide in the long term certified LTDP services.

ESA expressed its high interest in a European LTDP System/Framework, being part of the long term ESA strategic view for digital data preservation, and highlighted the fact that future plans concerning the ESA archives management and evolution are fully tuned with the LTDP objectives and principles. The expected large benefits from a common sharing of cooperative issues were also highlighted together with the fact that LTDP, in the ESA view, represents a unique challenge for a coherent EO data archive management system and a unique opportunity for a coordinated European approach. ESA executive will seek for the approval of the ESA members States concerning the most adequate approach and the necessary funding to implement the LTDP of all ESA EO data.

EUMETSAT already operationally applies a LTDP policy aligned to the draft European LTDP Common Policy/Guidelines and has valuable experience in this field. Only one concern with respect to the Draft LTDP Common Policy/Guidelines was expressed on the internal archive format change and

standardization, because it might adversely impact system performances. The interest in liaising with the initiative and the group was expressed.

Private EO mission owners (DMCII, Eurimage, Deimos Imaging, SpotImage, EuroMap, RapidEye, CDTI) recognized the need and benefits of an European LTDP System/Framework and of the Draft European LTDP Common Policy/Guidelines, most of them fully supported the initiative and expressed their interest to join it.

The fact that it is technically entirely feasible to establish a European wide LTDP policy and that government support could be the only restriction was expressed. Support from governments was highlighted as a key point for private mission owners to guarantee the preservation of their EO data, especially in the event of business failure. Data licensing issues were also addressed (the imagery copyright should remain with the mission owner) and it was highlighted that LTDP should not be driven by technology but by the user and market needs.

The need to have a European LTDP System/Framework not based on a centralized database in order to comply with data access performance needs and ownership restrictions was also recognized. The need to have adequate budgets, e.g from governments, to fund LTDP of old data having very limited economic value (95% of distributed data from commercial entities were acquired within the last three years and old data have not many requests to justify commercial investment) but high potential scientific interest was also expressed together with the need for having a standard archived format (e.g: SAFE). It was also proposed that small organizations could rely on the big public ones for the preservation of their data allowing free access to them for scientific use. Small organizations in fact can hardly cope with 15-20 years of data preservation.

It was also highlighted that the adherence to an European LTDP Common Policy/Guidelines could have several benefits but the cost and technical impact could be afforded only if suitable funding sources are available.

Archive holders and operators of mission/archives (Finnish Meteorological Institute, Infoterra UK, INTA, KSAT, NEODC/BADC, SSC and VITO) expressed interest and supported the LTDP initiative.

The need for short term investments was highlighted, although this was believed to be offset by longer term gains and by the benefits present in becoming an active element of the European LTDP System/Framework. Commercial organizations also recognized that care must be taken with the licensing and distribution rights of their own datasets. Standardization of formats and fast access to the data were also identified as key issues.

It was highlighted the need to improve the exploitation of the archived data and that common and agreed LTDP Policy/Guidelines may contribute to increase the awareness about the existence of the data and their utilization. An European LTDP System/Framework could lead to a wider use of historical data and could improve the access to EO space data. Data archive could become therefore a competitive element for mission owners and their operators and could lead to investments also from private entities. Some concerns on the compatibility in standards used were raised.

The benefits for all users deriving from a European LTDP System/Framework were recognized together with the advantages in aligning future evolutions of archive systems in the different entities with the LTDP Common Policy/Guidelines. It was also highlighted the fact that a feedback to political entities and governments is needed and that this initiative can trigger governments interest in LTDP leading to investments from their side.

Interest was also expressed in aligning to the LTDP Common Policy/Guidelines, in moving towards a LTDP funding scheme not project dependant but also based on a fixed contribution per project (e.g.: as like as an LTDP funding tax on projects) and in cooperating with other partners to exchange knowledge and in future to share costs.

Industries present at the workshop highlighted the benefits of the initiative from a services provision point of view and the need for recommendations on what data/metadata should be preserved and on architectures/technologies. The future decrease of cost of storing media was also highlighted as an item in favour of the maintenance of all the data without any distinction or selection. The issue of funding for both private and public organizations was raised and interest was expressed also because LTDP may increase archived data requests and, consequently, it could be possible to provide more services to users.

Alliance expressed appreciation for the initiative and for the way it was conducted until the workshop event. The need to identify sustainable funding models was highlighted together with the need to build in Europe a sustainable operational infrastructure for the preservation of digital records. The availability to provide support for the organization of high level decisional meetings was expressed.

As a summary the following main points were highlighted:

- The need for standardisation and application of standards to increase interoperability (product specification and format, cal/val, data exchange format).
- The importance of cooperation on LTDP topics and the need to optimize solutions and costs.
- The need to provide on-line access to data and to stimulate EO space data usage, especially for historical data.
- The importance to maintain the distributed nature of the archives (i.e.: comply with ownership restriction).
- The need to have a certification process and to guarantee security for the archives.
- Support from governments as a key point for private mission owners to guarantee preservation of data with reduced economic commercial value.
- Data licensing issues for private mission owners.

The Draft European LTDP Common Policy/Guidelines:

- Have been recognized as a first good starting point for moving ahead in LTDP and ease cooperation.
- Can be adopted for old missions and straightforward for new missions and projects.

An European LTDP System/Framework:

- Has recognized benefits in all the proposed cooperation areas (e.g. standardization, sharing experience and competence) as starting point.
- Can bring a long term involvement on the different subjects of possible cooperation to create future standardized and interoperable services (long term perspective).
- Can allow sharing workload of common subjects which can benefit the “limited” teams of data holders.
- Can provide solutions (quite urgent, several missions are at end of life).
- Can trigger the availability in the participating entities of permanent funding sources (e.g. at European EO data owners).

- Can trigger the availability in the long term of additional permanent funding sources (e.g. governments, EC, etc).

4.5 Session 4: Workshop Recommendations

The workshop and the initiative of the Long Term Data Preservation Working Group were highly appreciated by the audience. Most of the participants supported the initiative and expressed the interest in joining it. The following set of recommendations was defined:

1. It is recognised the need and benefits of a shared and coordinated European LTDP System/Framework.
2. The draft European LTDP Common Policy/Guidelines are recommended as the first step for its implementation.
3. European LTDP Common Policy/Guidelines have to be considered as a guideline to be targeted for the mid-long term (partial adherence in the short term).
4. EO data owners can join the European LTDP System/Framework at any time, the System/Framework is open to all possible members.
5. Funding model relies on each single organisation: it is recommended that EO mission owners start to trigger LTDP discussion in their organisations.
6. Feed-back on the status of implementation of the European LTDP Common Policy/Guidelines and System/Framework and its evolution through:
 - a. Future workshops involving all stakeholders.
 - b. ESA EOPortal (www.eoportal.org) and GSCB Web site (<http://www.earth.esa.int/gscb/>).
7. ESA to trigger and coordinate the following steps toward the progressive European LTDP System/Framework implementation.

4.6 Next Steps

During the round table discussion several participants highlighted the need of concrete steps for the future, recommended the generation of proposals on the way forward (milestones, schedule) and proposed ESA as coordinator of the LTDP initiatives. The definition of guidelines from the LTDP Working Group was considered necessary to trigger an alignment by the different entities as well as the provision of support for the application of the defined guidelines.

The need to define funding sources for the LTDP was also considered as a main point together with the need increase awareness on this issue through future workshops in order to get also feedback on the status of implementation and continue collaboration.

ESA expressed the willingness to continue activities in this field proposing also to hold a second LTDP workshop in a two years time. Cooperation in Europe on Long Term Data Preservation can start immediately. Next steps can be summarised as follow:

ESA:

1. Present the European LTDP System/Framework approach to its member states and/or the EC.
2. Present an implementation plan to its member states for the ESA missions based on the commonly agreed LTDP Policy/Guidelines.
3. Workshop results publishing:

- a. All the presentations held during the workshop and the workshop report available on the GSCB web site (<http://www.earth.esa.int/gscb/>).
 - b. A draft European LTDP Common Policy/Guidelines white paper generated for promotion.
4. Organize 2nd LTDP Workshop in 2010 for feed-back on the status of implementation of the European LTDP Common Policy/Guidelines and System/Framework and its evolution involving all stakeholders.

LTDP WG:

5. Consolidate a set of commonly agreed recommendations (LTDP Common Policy/Guidelines) and a cooperation scheme that can be used by each EO data archive or mission owner to:
 - o Ease the preservation and access of the own EO data through proven technologies, procedures and approaches.
 - o Plan future funding schemes for EO data LTDP.
 - o Highlight the importance and increase awareness on LTDP.
 - o Cooperate on technology development, standardization activities, operational solutions and in data exploitation for cost-effective LTDP solutions.

OTHERS:

6. Highlight the importance and increase awareness on LTDP.
7. Start planning the adherence to the European LTDP Common Policy/Guidelines.
8. Plan for the required funding scheme, if needed.
9. Progressively cooperate on:
 - o technology development,
 - o standardization activities,
 - o operational solutions
 - o data exploitation

ANNEX 1 – WORKSHOP AGENDA

Day 1: 27th May 2008

14:00	Welcome and Workshop Objectives	G. Kohlhammer (ESA)
14:15	European EO Long Term Data Preservation – Benefits, challenges and objectives	M.E. Forcada (ESA)
14:40	Questions & Answers	
Session 1: European Initiatives on Long Term Data Preservation		V. Beruti (ESA)
14:50	All alliance of key stakeholders to build an European cross-domain infrastructure for Permanent Access to data and publications in science	P. Tindemans (Alliance)
15:10	European Commission view and activities on digital preservation of information	Carlos Oliveira (EC) Registered
15:20	EC Caspar and Parse Projects	D. Giaretta (STFC) Videoconf.
15:40	Questions & Answers	
15:50	Coffee Break	
Session 2: LTDP Working Group First Results		M.E. Forcada (ESA)
16:15	Goals, European EO Space Dataset & Draft European LTDP Common Policy	M. Albani (ESA)
16:40	Ideas on LTDP Cooperation Scheme & Ideas on Implementation Plan	V. Beruti (ESA)
17:00	Questions & Answers	
Session 3: Long Term Data Preservation of major European and Canadian Missions and implication analysis of European LTDP Common Policy.		E. Mikusch (DLR)
17:20	ESA LTDP Approach	V. Beruti (ESA)
17:35	ASI LTDP Approach	M. Serra (ASI)
17:50	CNES LTDP Approach	M. Duplaa (CNES)
18:05	Questions & Answers	
18:20	DMC LTDP Approach	O. Hawkins (DMCII)
18:35	EUMETSAT Policy for Long-Term data Preservation	F. Cadé (EUMETSAT)
18:50	Questions & Answers	
19:00	Adjourn	
19:30	Welcome Cocktail	

Day 2: 28th May 2008

Session 3: Long Term Data Preservation of major European and Canadian Missions and implication analysis of European LTDP Common Policy (cnt').		M. Duplaa (CNES)
09:15	Quickbird and WorldView-1 LTDP Approach	R. Zuco (Eurimage)
09:30	KSAT LTDP Approach	M.E. Johanse (KSAT)
09:45	DLR LTDP Approach	E. Mikusch (DLR)
10:00	ESRANGE LTDP Approach	L. Poromaa (SSC)
10:15	Deimos-1 LTDP Approach	J. Lopez (DEIMOS)
10:30	Questions & Answers	
11:00	Coffee Break	
11:30	NERC/RAL LTDP Approach	V. Jay (NERC/RAL)
11:45	Preservation of VEGETATION and other EO data at VITO	J.C. Dries (VITO)
12:00	SPOT6 as follow-on of SPOT series	D. Giacobbo (SPOT Image)
12:15	IRS Data Archive	F. Barner (EuroMap)
12:30	Infoterra LTDP Approach	T. Underwood (INFOTERRA)
13:00	Questions & Answers	
13:15	Lunch	
Session 4: Wrap-up and Discussion		M. Albani, V. Beruti (ESA)
14:30	<ul style="list-style-type: none"> - Workshop Summary. - Discussion on: <ul style="list-style-type: none"> ➤ Received comments. ➤ Input for European LTDP Common Policy, Cooperation Scheme and Implementation Plan. ➤ Next steps ➤ AOB 	
16:30	End of Workshop	
	Adjourn	

ANNEX 2 – PRESENTATIONS TEMPLATE CONTENT

- Long Term Data Preservation current status and future evolutions:
 - o What EO space data are preserved and for how long.
 - o Current and future approaches for:
 - o Archives maintenance and data integrity
 - o Archives operations
 - o Data Security
 - o Data access and interoperability
 - o Reprocessing
 - o Archives data exploitation
 - o Standardization
 - o Data Access policy
- Architectures and Technology current status and future evolutions:
 - o Archiving centers
 - o Missions
 - o Amount of archived data
 - o Internal architecture of archiving centers
 - o Archived Data Formats
 - o Technology used
 - o Operational aspects
 - o Data Access
- Long Term Data Preservation Funding current status and future evolutions:
 - o Costing
 - o Approval Cycle
 - o Duration
 - o Funding Sources
- Implication Analysis of the European LTDP Common Policy/Guidelines:
 - o Describe the implications on your own missions deriving from an European common LTDP Policy/Guidelines: Benefits, Feasibility, Constraints, Impacts, Main issues, Etc..
- Understanding and Interest in Common LTDP:
 - o Describe your understanding and interest in a European LTDP System/Framework.
 - o What would be your suggestions/position about becoming active part of the European LTDP System/Framework; are there objections, impediments, restrictions, challenges, opportunities?