InterPARES 2 Project
International Research on Permanent Authentic Records in Electronic Systems

Domain 1 Research Questions

Case Study 26:
Microvariability & Oscillations of Stars (MOST) Satellite Mission: Preservation of Space Telescope Data

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1.1 What types of documents are traditionally made or received and set aside (that is, created) in the course of artistic, scientific, and governmental activities that are expected to be carried out on-line? For what purposes? What types of electronic documents are currently being created to accomplish those same activities? Have the purposes for which these documents are created changed?

- The Microvariability and Osciallations of Stars (MOST) project produces digital entities of unprecedented precision and time coverage:
    - Files, either text or graphics, that are transmitted from satellite
        - Sds raw
        - Sds 1
        - Sds 2
    - Metadata
        - Contextual information about the camera and the satellite
        - Information about how the information is cut in pieces (RASTA file)
        - Timing information
        - Orbital information (Two Line Element Files)
    - Flexible Image Transfer System (FITS) files
    - Light curves or images

- Other existing astronomical archives tend to consist of 2-dimensional CCD images or 1-dimensional spectra

- As the first of its kind in Canada, the purpose of MOST is to further an understanding of stars by analyzing their behaviour

1.2 What are the nature and the characteristics of the traditional process of document creation in each activity? Have they been altered by the use of digital technology and, if yes, how?

- MOST participates in scientific research by measuring variations in the brightness of stars through the data that is captured by satellite camera, including the following processes:
    - Capture of the data by satellite camera (data input)
    - Processing the data in the satellite
    - Transfer of the data into new file types, including packaging it into 100kb files and creating FITS files of relevant data
    - Reduction of the data (data analysis)
    - Publication of the data

- The final report does not mention how processes have changed as a result of using digital technology

1.3 What are the formal elements and attributes of the documents generated by these processes in both a traditional and a digital environment? What is the function of each element and the significance of each attribute? Specifically, what is the manifestation of authorship in the records of each activity and its implications for the exercise of intellectual property rights and the attribution of responsibilities?

- Key elements and attributes include textual and graphical files

- No mention is made in the final report of how authorship is manifested in the MOST sds files; authorship of FITS files is asserted through the use of a field stating that they are created by MOST

- After a period of one year MOST data is available to the public; while its intellectual property rights are no longer considered to be an issue, MOST requests that data that is used acknowledges the MOST project

1.4 Does the definition of a record adopted by InterPARES 1 apply to all or part of the documents generated by these processes? If yes, given the different manifestations of the record's nature in such documents, how do we recognize and demonstrate the necessary components that the definition identifies? If not, is it possible to change the definition maintaining theoretical consistency in the identification of documents as records across the spectrum of human activities? In other words, should we be looking at other factors that make of a document a record than those that diplomatics and archival science have considered so far?

- The MOST raw data constitutes a record according to the definition established by InterPARES 1

- The raw data are fixed in content and form

- The raw data are the mechanism for carrying out the action of astronomic research

- The raw data possess an archival bond with other entities generated in the course of conducting research
- Three persons (author, writer, addressee) are clearly involved in the creation of the MOST raw data:
    - MOST project (author, writer, addressee, creator, originator), general public and astronomical community (addressees after one year), Canadian Astronomy Data Centre (originator after one year)

- The raw data possess an identifiable context:
    - Juridical/administrative: MOST is informally governed by the academic and professional standards to which its founders, UBC and UTIAS, adhere
    - Provenancial: the MOST project comprises the creating body of this case study
    - Procedural: specific phases carried out in the creation and development of the MOST project
    - Documentary:
    - Technological: is part of the MOST project fonds

1.5 As government and businesses deliver services electronically and enter into transactions based on more dynamic web-based presentations and exchanges of information, are they neglecting to capture adequate documentary evidence of the occurrence of these transactions?

- There are no transactions as such that occur within the MOST Project

1.6 Is the move to more dynamic and open-ended exchanges of information blurring the responsibilities and altering the legal liabilities of the participants in electronic transactions?

- This question does not apply to the astronomical context of this case study

1.7 How do record creators traditionally determine the retention of their records and implement this determination in the context of each activity? How do record retention decisions and practices differ for individual and institutional creators? How has the use of digital technology affected their decisions and practices?

- While no formal records management program or policy currently exists that determines data retention, some aspects of records management are currently being implemented:
    - Documentation relating to the metadata of FITS files
    - MOST archiving manual—relates to daily, weekly and target duties of responsible person (although these duties are not always followed)
    - FITS and sds files are backed up on either CDs or DVDs as well as the software necessary to access FITS files and reductions