PDS\_VERSION\_ID = PDS3

RECORD\_TYPE = STREAM

OBJECT = TEXT

 INTERCHANGE\_FORMAT = ASCII

 PUBLICATION\_DATE = 2015-11-18

 NOTE = "Introduction to this archive volume."

END\_OBJECT = TEXT

END

 ROSETTA : RADIO SCIENCE DATA ARCHIVE

 Volume ID: RORSI\_1010

 Data from Experiments on 2014/089

 RO PRELANDING

 V1.0

 "RORSI\_1010\_2014\_089 V1.0"

 AAREADME.TXT

 2015-11-18

 Rheinisches Institut fuer Umweltforschung

 at the University of Cologne

 Department of Planetary Research

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INTRODUCTION

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 This electronic media contains archival raw, partially processed, and

 ancillary/supporting radio science data acquired during the

 ROSETTA PRELANDING.

 The definition of the mission phases

 is given in CATALOG/MISSION.CAT.

The radio observations were carried out using the ROS spacecraft and

Earth based receiving station in New Norcia, Australia (ESA), or the DSN

stations (NASA).

Each disc in the volume set contains data from one day of the mission

phase. Data are organized in approximate chronological order, though

receipt at Cologne was generally more important in determining

placement than strict order of generation or applicability. If data

are not or just incomplete available for archiving, the affected day will

be skipped. The archiving of this day takes place some time later. For

this reason a strict chronological order of data organization can not be

adhered to. A table of contents is included with each volume, listing

each file in the volume; a separate table of contents shows all files

within the data set.

The table below lists the individual volumes (CDs) created to date and

(very briefly) their respective contents.

 RSI VOLUME ID VOLUME\_ID Start Date Measurement

 ------------- ---------- ---------- -------------

 RORSI\_0001 RORSI\_0001 2004-03-26 Commissioning

 RORSI\_0002 RORSI\_0002 2004-03-27 Commissioning

 RORSI\_0003 RORSI\_0003 2004-03-28 Commissioning

 RORSI\_0004 RORSI\_0004 2004-03-29 Commissioning

 RORSI\_0005 RORSI\_0005 2004-05-02 Commissioning

 RORSI\_0006 RORSI\_0006 2004-05-03 Commissioning

 RORSI\_0007 RORSI\_0007 2004-05-04 Commissioning

 RORSI\_0008 RORSI\_0008 2004-05-05 Commissioning

 RORSI\_0009 RORSI\_0009 2004-05-06 Commissioning

 RORSI\_0010 RORSI\_0010 2004-09-11 Commissioning

 RORSI\_0011 RORSI\_0011 2004-10-09 Commissioning

 RORSI\_0012 RORSI\_5001 2005-04-06 Checkout

 RORSI\_0013 RORSI\_5002 2005-04-06 Checkout

 RORSI\_0014 RORSI\_5003 2005-09-29 Checkout

 RORSI\_0015 RORSI\_3001 2006-03-02 Solar Conjunction

 RORSI\_0016 RORSI\_3021 2006-03-15 Solar Conjunction

 RORSI\_0017 RORSI\_3007 2006-03-16 Solar Conjunction

 RORSI\_0018 RORSI\_3002 2006-03-22 Solar Conjunction

 RORSI\_0019 RORSI\_3003 2006-03-23 Solar Conjunction

 RORSI\_0020 RORSI\_3004 2006-03-24 Solar Conjunction

 RORSI\_0021 RORSI\_3005 2006-03-28 Solar Conjunction

 RORSI\_0022 RORSI\_3006 2006-03-29 Solar Conjunction

 RORSI\_0023 RORSI\_3008 2006-03-30 Solar Conjunction

 RORSI\_0024 RORSI\_3009 2006-03-31 Solar Conjunction

 RORSI\_0025 RORSI\_3010 2006-04-01 Solar Conjunction

 RORSI\_0026 RORSI\_3011 2006-04-04 Solar Conjunction

 RORSI\_0027 RORSI\_3024 2006-04-05 Solar Conjunction

 RORSI\_0028 RORSI\_3012 2006-04-06 Solar Conjunction

 RORSI\_0029 RORSI\_3013 2006-04-07 Solar Conjunction

 RORSI\_0030 RORSI\_3014 2006-04-08 Solar Conjunction

 RORSI\_0031 RORSI\_3015 2006-04-10 Solar Conjunction

 RORSI\_0032 RORSI\_3025 2006-04-15 Solar Conjunction

 RORSI\_0033 RORSI\_3026 2006-04-16 Solar Conjunction

 RORSI\_0034 RORSI\_3027 2006-04-17 Solar Conjunction

 RORSI\_0035 RORSI\_3036 2006-04-18 Solar Conjunction

 RORSI\_0036 RORSI\_3029 2006-04-19 Solar Conjunction

 RORSI\_0037 RORSI\_3016 2006-04-20 Solar Conjunction

 RORSI\_0038 RORSI\_3030 2006-04-21 Solar Conjunction

 RORSI\_0039 RORSI\_3031 2006-04-22 Solar Conjunction

 RORSI\_0040 RORSI\_3017 2006-04-23 Solar Conjunction

 RORSI\_0041 RORSI\_3018 2006-04-24 Solar Conjunction

 RORSI\_0042 RORSI\_3032 2006-04-25 Solar Conjunction

 RORSI\_0043 RORSI\_3019 2006-04-26 Solar Conjunction

 RORSI\_0044 RORSI\_3020 2006-04-27 Solar Conjunction

 RORSI\_0045 RORSI\_3037 2006-04-28 Solar Conjunction

 RORSI\_0046 RORSI\_3022 2006-04-29 Solar Conjunction

 RORSI\_0047 RORSI\_3038 2006-05-02 Solar Conjunction

 RORSI\_0048 RORSI\_3039 2006-05-03 Solar Conjunction

 RORSI\_0049 RORSI\_3023 2006-05-04 Solar Conjunction

 RORSI\_0050 RORSI\_3040 2006-05-09 Solar Conjunction

 RORSI\_0051 RORSI\_3041 2006-05-10 Solar Conjunction

 RORSI\_0052 RORSI\_5004 2006-08-22 Checkout

 RORSI\_0053 RORSI\_5005 2006-11-22 Checkout

 RORSI\_0060 RORSI\_5006 2007-05-15 Checkout

 RORSI\_0061 RORSI\_5007 2007-10-10 Checkout

 RORSI\_0063 RORSI\_5008 2008-01-03 Checkout

 RORSI\_0064 RORSI\_5009 2008-11-04 Checkout

 RORSI\_0120 RORSI\_3033 2006-11-04 Solar Conjunction

 RORSI\_0120 RORSI\_6001 2010-07-10 Lutetia

 RORSI\_0121 RORSI\_3028 2006-04-12 Solar Conjunction

 RORSI\_0122 RORSI\_3034

 2006-04-13 Solar Conjunction

 RORSI\_0123 RORSI\_3035 2006-04-13 Solar Conjunction

 RORSI\_1010 RORSI\_0012 2014-03-30 Commissioning

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VOLUME SET INFORMATION

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This disc is one of several which contain raw and partially processed

data from the ROSETTA PRELANDING.

Each archive volume has the structure illustrated in the diagram

below. Not all directories or file types will be present on every

disc; for example, one volume may contain either IFMS or DSN

Data Files. In cases where the directory contains no files, the

directory itself has been omitted from the CD-WO volume.

The primary data types for these volumes are if the data was retrieved

from an ESA ground station IFMS closed-loop and open-loop data files.

In case of data files received in ground station of the DSN system

these are the DSN Radio-Science Receiver (RSR) data files, the Orbit

Data File (ODF), and the Tracking and Navigation Data File (TNF). All

these files are stored in the DATA folder in the root directory within

appropriate subfolders.

The primary data files are accompanied by a number of ancillary files

in the CALIB directories and the ANCILLARY folders of the EXTRAS

directories. CALIB and DOCUMENT files appear on every volume where

they could be useful. Each of these files appears only once in the

volume set; users should consult the tables of contents in the INDEX

directory for file locations.

The diagram below shows the organization of each volume, starting from

the root of the compact disc.

 root

 |

 |- AAREADME.TXT

 |- ERRATA.TXT

 |- VOLDESC.CAT

 |

 |- BROWSE

 | |

 | |- BROWINFO.TXT Description of the BROWSE directory

 | which includes Quick Look Browse Plots

 | of the data.

 |- CALIB

 | |

 |- CALINFO.TXT Overview of directory

 | |- CLOSED\_LOOP

 | |-IFMS IFMS closed-loop calibration files

 | |-DSN DSN closed-loop calibration files

 | |- OPEN\_LOOP

 | |-IFMS IFMS open-loop calibration files

 | |-DSN DSN open-loop calibration files

 | |- UPLINK\_FREQ\_CORRECT

 | This folder will only be generated if

 | the uplink frequency in one of the .RAW

 | files was identified as wrong.

 | It tells the user which files were

 | affected and where to find the corrected

 | Level 2 data files.

 |

 |- CATALOG

 | |

 | |- CATINFO.TXT Streamlined PDS catalog files

 | |- MISSION.CAT for mission, host, instrument,

 | |- INSTHOST.CAT references, personnel, and

 | |- INST.CAT data set (files evolve as

 | |- REF.CAT mission progresses).

 | |- PERSON.CAT

 | |- DATASET.CAT

 | |- SOFT.CAT

 | |- TARGET.CAT

 |

 |- DATA

 | |

 | |- LEVEL1A

 | |- CLOSED\_LOOP

 | |-IFMS IFMS closed-loop data files(Level 1a)

 | |-DSN DSN closed-loop data files (Level 1a)

 | |- OPEN\_LOOP

 | |-IFMS IFMS open-loop data files (Level 1a)

 | |-DSN DSN open-loop data files (Level 1a)

 | |- LEVEL1b

 | |- CLOSED\_LOOP

 | |-IFMS IFMS closed-loop data files(Level 1b)

 | |-DSN DSN closed-loop data files (Level 1b)

 | |- OPEN\_LOOP

 | |-IFMS IFMS open-loop data files (Level 1b)

 | |-DSN DSN open-loop data files (Level 1b)

 | |- LEVEL02

 | |- CLOSED\_LOOP

 | |-IFMS IFMS closed-loop data files (Level 2)

 | |-DSN DSN closed-loop data files (Level 2)

 | |- OPEN\_LOOP

 | |-IFMS IFMS open-loop data files (Level 2)

 | |-DSN DSN open-loop data files (Level 2)

 |- EXTRAS

 | |

 | |- ANCILLARY

 | |- SPICE SPICE Ancillary Data files

 | |- ESOC ESOC Ancillary Data files

 | |- UNIBW UniBW Ancillary Data files

 | |- RSI Level 2 Processing logfiles

 | |- SUE Modified Spice kernels

 | |- DSN Earth Orientiation Parameter files,

 | Light Time File and Orbit Propagation and

 | Timing Geometry File

 |

 |- INDEX

 | |

 | |- INDXINFO.TXT Overview of directory

 | |- INDEX.LBL Label to INDEX.TAB

 | |- INDEX.TAB List of data file contents, this volume

 | |- BROWSE\_INDEX.LBL Label to BROWSE\_INDEX.TAB

 | |- BROWSE\_INDEX.TAB List of all files in BROWSE directory

 |

 |

 |-DOCUMENT

 | |

 | |- DOCINFO.TXT Overview of directory

 | |- RSI\_DOC RSI documents

 | |- ESA\_DOC ESA documents

 | |- DSN\_DOC DSN documents documents 7

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ERRATA

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 A cumulative list of errors and changes is maintained in the file

ERRATA.TXT at the root level of each volume. ERRATA.TXT in higher

numbered volumes (or higher version numbers) will have errors for

earlier volumes.

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DISC FORMAT

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The disc is organized according to the PDS standard for

'one data set, one volume.' This file (AAREADME.TXT), a PDS volume

object definition

(VOLDESC.CAT), and the listing of errors and changes (ERRATA.TXT) are

included at the root level. The following directories of descriptive

material are also at the root level:

 CALIB contains data files for data calibration, e.g. the IFMS

 Range calibration files and IFMS Meteo files containing

 Meteorological data from ground station.

 In case of DSN data the appropriate calibration files are

 tropospheric and ionospheric media calibration files

 Note: If the uplink frequency in one of the RAW files was

 identified as wrong the folder UPLINK\_FREQ\_CORRECT

 will contain files which identify

 which files were affected and where to find the

 corrected Level 2 data files.

 CATALOG contains descriptive files for cataloging the data

 on this disc.

 BROWSE contains Quick Look Browse Plots of the data.

 INDEX contains index information on each of the data files

 included in this disc; it also includes a cumulative

 index to all files in this volume set.

 DATA contains the scientific data of data level 1a, 1b and

 Level 2. The different data files are described with

 Detached labels.

 EXTRAS contains additional information which may help some

 users understand or manipulate data;

 The ANCILLARY subfolder contains ancillary data

 about spacecraft orbit, attitude

 clock conversions, planetary ephemerises and constants in

 two different formats: the NAIF SPICE software and the

 OASW software from ESOC. Additional data files from the

 Universitaet der Bundeswehr, Munich, are also stored in

 a appropriate subfolder, if available.

 Files in this directory are not considered part of the

 formal archive and have not been reviewed for

 completeness or accuracy.

 DOCUMENT contains the files that provide documentation and

 supplementary information to assist in understanding and

 using the data products on the volume.

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FILE FORMAT

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The file format of the data files on a volume depends on the data

type, IFMS Or DSN data. The IFMS data files are all in ASCII format.

The closed-loop and open loop DSN data files on the other hand are

all binary. The Format description can be found in the DOCUMENT

folders of the EXTRAS Directory. All documents in the DOCUMENT

subdirectories are in the binary PDF Format, which can be read by

nearly all standard text readers, e.g. Adobe Acrobat Reader.

Most of the data files on the disc are accompanied by detached

PDS labels, which describe their contents. Some data products have so

called 'combined detached' labels, where one label covers two or more

data files. Detached labels have the same file name as the data file

except that the label name has the suffix 'LBL'.

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SOFTWARE

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Scientific Software for processing and analyzing of the RSI data

files are not included in any RSI data volume.

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ACKNOWLEDGMENTS

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These data were collected under auspices of the Project

M. Paetzold of the Rhenish Institute of Environmental Research at the

University of Cologne as the Principal Investigator of the

Radio-Science Experiment.

He was also the Radio Science Team Leader. Members of the Team and its

support elements involved in data acquisition and validation included

Richard Simpson (Stanford University) and B. Haeusler (UniBW, Munich).

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DISCLAIMER

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Although considerable care has gone into making this volume set,

errors are both possible and likely. Users of the data are advised to

exercise the same caution as they would when dealing with any other

unknown data set.

Reports of errors or difficulties would be appreciated.

Please contact one of the persons listed below.

======================================================================

COGNIZANT PERSONNEL

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The person most directly responsible for construction and release of

this volume set is Martin Paetzold (PI). Although many people

contributed to the volume set, any faults in the product

are his alone.

MARTIN PAETZOLD

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ACRONYMS AND ABBREVIATIONS

======================================================================

AGK Antenna Gain Kernel (file and/or directory)

AMD Angular Momentum Desaturation (file and/or directory)

ATDF Archival Tracking Data File (same as TDF)

CALIB Calibration (file and/or directory)

CD Compact Disc

DKF DSN Keyword File (file and/or directory)

DSN Deep Space Network

ECH Engineering - Channelized data (file and/or directory)

ECS Engineering - Channelized data Summary (file and/or directory)

ECT Engineering Channel Table

EOP Earth Orientation Parameters (file and/or directory)

EPK Engineering - Packet data (file and/or directory)

ESA European Space Agency

FBR Filtered Body Rates (file and/or directory)

HEA Health report (file and/or directory)

HGA High Gain Antenna (device and/or file and/or directory)

IFMS Intermediate Frequency Modulation System

ION Ionosphere Calibration file (file and/or directory)

LGA Low Gain Antenna

LIT Light Time (file and/or directory)

MCH DSN Monitor - Channelized data (file and/or directory)

MCT Monitor Channel Table

MIF Maneuver Implementation/Reconstruction File

 (file and/or directory)

MOI Mars Orbit Insertion

MPD Maneuver Performance Data (file and/or directory)

MPF Maneuver Profile File

MPK DSN Monitor - Packet data (file and/or directory)

NASA National Aeronautics and Space Administration

occn occultation

ODR Original Data Record (file and/or directory)

ODF Orbit Data File (file and/or directory)

ONF Orbit Number File (file and/or directory)

OPT Orbit Propagation and Timing Geometry (file and/or directory)

PDS Planetary Data System

RSI Radio Science Investigations

RSR Radio Science Receiver

RSS Radio Science Subsystem

SAK Solar Array Kernel (file and/or directory)

SFO Space Flight Operations Sequence (file and/or directory)

SOE Sequence of Operations (file and/or directory)

SPK Spacecraft and Planet Kernel (file and/or directory)

TCK Text C-Kernel (file and/or directory)

TDF Tracking Data File (file and/or directory)

TNF Tracking and Navigarion file

TIM Time and Polar Motion (file and/or directory)

TMO Transition to Mapping Orbit

TRO Troposphere Calibration File (file and/or directory)

WEA DSN Weather (file and/or directory)

WO Write Once