EARTH EXPLORER MISSION CFI SOFTWARE

Release Notes - Version 3.3

1 INTRODUCTION

This note describes the changes introduced in the new release of the Earth Explorer CFI software libraries.

2 NEW RELEASE DESCRIPTION

2.1 CFI Software and Documentation Delivery

The new versions of the CFI software libraries are the following:
- EXPLORER_FILE_HANDLING -- Version 3.3 - 11/07/05
- EXPLORER_DATA_HANDLING -- Version 3.3 - 11/07/05
- EXPLORER_LIB -- Version 3.3 - 11/07/05
- EXPLORER_ORBIT -- Version 3.3 - 11/07/05
- EXPLORER_POINTING -- Version 3.3 - 11/07/05
- EXPLORER_VISIBILITY -- Version 3.3 - 11/07/05
- EXPLORER_GEN_FILES -- Version 3.3 - 11/07/05

The following Software User Manuals have been updated accordingly:
- EXPLORER_FILE_HANDLING issue 3.3
- EXPLORER_LIB issue 3.3
- EXPLORER_ORBIT issue 3.3
- EXPLORER_POINTING issue 3.3
- EXPLORER_VISIBILITY issue 3.3
- EXPLORER_GEN_FILES issue 3.3
- GENERAL issue 3.3

2.2 Compilation software and platform

This release of the CFI libraries are provided for SOLARIS, LINUX, MACOS and WINDOWS platforms.
- SOLARIS:
    - Solaris 2.7 (or later) Operating System
    - gcc compiler version 3.3.2 (for linking the software to a C application)
    - libxml2 version 2.5.7 or later
- LINUX:
    - Linux 2.4.18 (RedHat 8.0) Operating System
    - gcc compiler version 3.3.1 (for linking the software to a C application)
    - libxml2 version 2.5.7 or later

    Note that there is an incompatibility between gcc compiler version 3.3 and the RedHat 7.x Operating System. The standard C library (libc.a) is not fully compatible with gcc V3.x.
- PC WINDOWS:

- Microsoft Windows 2000 or XP Operating Systems.
- Microsoft Visual C++ 6.0 Compiler (for linking the software to a C application)
- libxml2 version 2.5.7 or later
- MACOSX
  - Mac OS X version 10.3.9
  - gcc compiler version 3.3 (for linking the software to a C application)
  - libxml2 version 2.6.2 or later

Note that the distributed binaries have been generated with no debug and no optimization flags (no SIMD optimization either).

2.3 Installation executables.

New installation programs are provided for:
- WINDOWS
  - "Earth Explorer CFI 3.3.exe" -- Version 3.3- 11/07/04
- MACOS
  - EE_CFI_Installation_3.3.dmg -- Version 3.3- 11/07/04

3 CLOSED SPRS

The following SPR have been solved:
- EXPCFI-SPR-035: pp_target core dump close to SZA=90 (modes idir=PP_INTER_1ST, iray = PP_STD_REF)
- EXPCFI-SPR-036: Refraction is not taken into account when the sun is above the horizon (SZA < 90)
- EXPCFI-SPR-037: Wrong value for the distance from the hinge point to the middle point of the solar panel structure
- EXPCFI-SPR-050: Multiple DORIS files not allowed when XO_SEL_TIME is selected.
- EXPCFI-SPR-051: Computation of DEM targets the user atmospheric mode causes and error message.
- EXPCFI-SPR-052: The function xp_multi_target_travel_time does not get the warning/error messages codes coming from the underlying functions.
- EXPCFI-SPR-053: Unexpected error message ("ERROR in xp_multi_target_travel_time: No target was found") in test with ADM using the YSM attitude model (scan angle = 0.0)
- EXPCFI-SPR-054: Reading routine of DORIS Navigator File: Error message when reading the ASCII header in CRYOSAT DORIS file
- EXPCFI-SPR-057: Error when calling xg_gen_swath with Swath Definition files containing harmonic attitude mode and Instrument offsets.
- EXPCFI-SPR-058: Unexpected error message when calling to xl_vectors_to_quaternions.

4 NEW REQUIREMENTS

The following new features/requirements have been implemented (see section "Known Problems" at the end of each of the SUMs to check limitations of the current release):
- First version for the EXPLORER_DATA_HANDLING library.

- New routines to access to the internal data stored in the ID data structures in the following libraries: EXPLORER_LIB, EXPLORER_ORBIT and EXPLORER_POINTING.
- Removed support for Envisat ASCII files.
- EXPLORER_LIB
  - New OBT-UTC time conversions for ADM and SMOS.
  - New orbital parameters and tolerances for METOP, ERS1 and ERS2. New values for CRYO-SAT and GOCE eccentricities.
- EXPLORER_GEN_FILES
  - <Quality> tag added for every Orbit State Vector in the generation of POF/ROF files.
- EXPLORER_POINTING
  - New xp_target_travel_time function.
  - New attitude models: CryoSat On Board YSM and ADM model (see details in EXPLORER_POINTING SUM, Section 9).
  - Support for new attitude files with quaternions or angles.
  - New format for the CryoSat Attitude Configuration file so that misalignment matrices can be characterized as three angles instead of only one.
  - Change in the maximum allowed value for the 'extra counter' in the XL_TRANS_CRYO_TM_SIRAL transport format
  - Extended checks on the CRYOSAT Star Tracker attitude data have been implemented
- EXPLORER_VISIBILITY
  - Support for computing visibility segments using Predicted or Restituted Orbit files or Orbit Event files (actually, for any orbit intitialisation, i.e. orbit_id)
  - Support for using Swath Definition files in all visibility functions
  - xg_gen_swath routine and gen_swath executable has been moved from the EXPLORER_GEN_FILES library to EXPLORER_VISIBILITY. The dependency between these two libraries has been removed.