# esa

| meeting date<br>*date de la réunion* | 19 April 2000 | ref./*réf.* | TOS-OF/2000/318/SJD/HS | | page/*page* | 1/5 |
|---|---|---|---|---|---|---|

| meeting place<br>*lieu de la réunion* | ESOC H-I | | minutes's date<br>*dates de minute* | 20 April 2000 |
|---|---|---|---|---|

| participants<br>*participants* | J F KaufelerJ Dodsworth, N Peccia | ESOC | copy/*copie* |
|---|---|---|---|
| | B E Melton, J Riedinger, P Estaria | ESTEC | |
| | R C Butler | TESRE/CNR | |
| | C Vuerli | OAT | |
| | E Wiezorrek, O H Bauer | MPE | |
| | K King, S D Sidher | RAL | |
| | B Mansoux | LAL | |
| | C Meregalli, M Poletti | LABEN | |
| | J Charra | IAS | |
| | L Dubbeldam, P Roelfsema | SRON | |
| | R Huygen | KUL | |

subject/*objet*  **SCOS 2000 and FIRST/PLANCK**

Agenda see attached

## 1. Welcome by C Mazza (Head of TOS-G)
- SCOS 2000 is a stable, mature, reliable product
- ESA/TOS will support the product for both Flight Operations and for EGSE development
- Invitation to become part of the SCOS 2000 community

## 2. Introduction by P Estaria
Note that the <-URD to SCOS 2000 has not been consolidated.
Objective: to provide enough data to enable PIs to make a decision with respect to SCOS 2000 as an element of PI systems.
Despite all constraints there is a measure of support for this year for EGSE consultancy [B Melton].
The baseline for MOC operations is SCOS 2000.

SJD will request a specific comment to be added to the ITT that SCOS 2000 is the baseline for the core of the Flight Control System.

It may be appropriate to include a statement concerning the instrument EGSE if a common approach can be agreed.

**M E E T I N G**

| meeting date | 19 April 2000 | ref/*réf* | TOS-OF/2000/318/SJD/HS | page/*page* | 2 / 5 |
| date de la réunion | | | | | |

## 3. SCOS 2000 Status (J F Kaufeler H/TOS-GC)

ESOC has confirmed (for LINUX at least) that the set of COTS available for Solaris will be available for other operating systems (Windows NT on-going investigation). Object Store$^{TM}$ will probably be replaced by a cheaper COTS object database.

## 4. EGSE and Supporting Elements [B Melton]

PROBA experience

PROBA  - technology satellite
  - uses 32-bit processor
  - payload – earth observation imager
  - test bed for automatic operations including on-board mission planning.

Ground Stations : 2-m antenna in REDU independent of ESA network.

SCOS 2 was the basis for the system.
ORACLE (as part of SCOS 2 product line) was used for the database, this was extended for the rest of the SCOE equipment [addressed like a subsystem of the spacecraft].
ROUTER is DELPMI based (Real-time 0 – 0 PASCAL)

LAB Views has been used as a typical application in the SCOE (slide 17).

TM processor ⇨ takes transfer frames and extracts VCs or packets for onward routing.

Slide 18   TM throughput is very dependent on the TM characteristics [packet size, number of VCs etc.] and the DMA characteristics. TM is already synchronised.

TC COP protocol is incorporated into the router – this requires COTS product from De Lande Long. This is most probably not necessary for an instrument SCOE.

Slide 21   The TPE accesses the ORACLE database directly at compilation time. Messages are exchanged with the SCOE on the basis of routing by APID. APIDs outside the spacecraft range are used for the SCOEs.

Slide 23   TCL/TK appears to be a good free-ware product with adequate documentation. Implementation in 2 stages: development/debug and then use in execution environment.

It is a seripting language, extended to deal with parameters and telecommands.

Slide 24   ORACLE or not ? SCOS 2000 has concentrated on the interface to a database which can be one of many products.

It is the baseline that a common database for the Project shall be provided by the PRIME. At this stage it is difficult to foresee what will be selected by the PRIME.

For ESOC the options currently available are ORACLE, MS Access or custom solutions. The Integral database tool is MS Access based, and is compatible with SCOS 2000.

The ORACLE database used for PROBA can be made available.

**MEETING**

| meeting date | 19 April 2000 | ref/*réf* | TOS-OF/2000/318/SJD/HS | page/*page* | 3 / 5 |
| date de la réunion | | | | | |

Slide 31   based on offers for licences for the COTS in the SCOS 2000 environment. Preference is that PIs procure with reference to the use and ESA agreement.

Slide 35   A "user" is to describe a single interest e.g. the same task for all the FIRST PIs will be considered 1 User [In essence the cost is simply the manpower consumed "User" is not really relevant].

Slide 37   Here the "User" is much more relevant, it refers to a single point of contact [which could represent a community].

- An interest in exchange of products from PI into SCOS 2000 was expressed. How can this be regulated remains open.

- This is in principle possible, compatible with an "open source" approach.

ESOC will investigate possible options with the external customer service [JFK].

First level help-desk is included in the service option price (35 KEURO/year/user).


## 19/04/2000 resumption at point 8 of the Agenda.

**8.   SCOS 2000 < URD**
Discussion of how changes to SCOS 2000 could be handled.

- ESOC ensures the integrity of the product line – one product only.
- ESA has an improvement program (budget limited)
- Impacts considered from all parties - they a judged as either
  - infrastructure enhancement (ESA funded)
  - project specific ("Customer funded")

In the last case they can be implemented as "add-ons" to the kernel by the customer, or as add-ons by ESOC (in which case this is funded by the customer).

It is agreed that there is a possibility that some developments could be handled by the customer and delivered to SCOS 2000, possibly with a reciprocal agreement.

Concern is expressed that a coherent strategy for the establishment of the interface to the Prime check-out equipment does not exist, or is not presented in the ITT.

PI opinion is that the interface should be defined in advance of the plan B start, so that they can proceed with their development on a firm baseline for the interface for the higher levels of the AIV program.

PIs need a core option by May 2001 to support DPU testing.

**M E E T I N G**

| meeting date | 19 April 2000 | ref/*réf* | TOS-OF/2000/318/SJD/HS | page/*page* | 4 |
|---|---|---|---|---|---|
| date de la réunion | | | | | 5 |

HFI and LFI start later than PACS but the schedule converges later.

Planck approach is very similar but simpler. They agree with the concern about the environment when the Instrument SCOE meets the Spacecraft Checkout System – the definition of the concept and how the interface will be developed needs to be defined.

The 3 FIRST Instruments have agreed a common EGSE development. Requirements frozen about June 2000 and then the development will be divided between the groups.

### <u><-URD + Evaluation by ESOC</u>
A coherent set of requirements will be considered at a meeting proposed on 23/05.

Interface with FINDAS – will use DDS in the mission. The ESOC infrastructure will be ready sometime at the end of 2001 to mid 2002.

ESOC will provide access to the SCOS 2000 server containing all the documentation on signature of the license agreement.

### <u>Practical Arrangements</u>
JFK will provide a template for license application for all the products presented [distributed to the Instrument Group already]. **AI**

### <u>Support and Service</u>
Address: Mr D Andrews TOS-PX with a request for support or service.

JFK to provide the details of how to obtain the special terms for the COTS products which are required for SCOS 2000. **End April AI**

### <u>Conclusion</u>
All PI groups unanimously stated their intention to use SCOS 200 as a basis for EGSE and RTA.

The intention should be reflected in the ITT documentation (IID) in terms of interface requirements for database, telemetry etc.

**MEETING**

| | | | |
|---|---|---|---|
| meeting date<br>*date de la réunion* | 19 April 2000 | ref/*réf*   TOS-OF/2000/318/SJD/HS | page/*page*   5 / 5 |

## PARTICIPANTS

| J Dodsworth | ESOC | sdodswor@esoc.esa.de |
|---|---|---|
| R C Butler | TESRE/CNR | butler@tesre.bo.cnr.it |
| N Peccia | ESOC | npeccia@esoc.esa.de |
| C Vuerli | OAT | VUERLI@TS.ASTRO.IT |
| B E Melton | ESTEC | bmelton@estec.esa.nl |
| E Wiezorrek | MPE | erw@mpe.mpg.de |
| K King | RAL | k.j.king@rl.ac.uk |
| S D Sidher | RAL | s.d.sidher@rl.ac.uk |
| B Mansoux | LAL | mansoux@LAL.IN2P3.FR |
| J Riedinger | ESTEC/SSD | jrieding@estec.esa.nl |
| C Meregalli | LABEN | meregalli.c@laben.it |
| M Poletti | LABEN | poletti.m@laben.it |
| J Charra | IAS | charra@ias.u-psud.fr |
| O H Bauer | MPE | ohb@mpe.mpg.de |
| L Dubbeldam | SRON | L.DUBBELDAM@sron.nl |
| R Huygen | KUL | rik@ster.kuleuven.ac.be |
| P Roelfsema | SRON | pjotr@sron.rug.nl |
| P Estaria | ESTEC | pestaria@estec.esa.nl |
| J F Kaufeler | ESOC | jkaufele@esoc.esa.de |