



WP1220: SPENVIS Business Model

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Scope and Purpose.....	1
1.2	Normative References.....	1
1.3	Glossary of Terms and Abbreviations	1
2	SPENVIS BACKGROUND	2
2.1	Current Usage.....	2
3	BUSINESS MODEL DESCRIPTION	4
3.1	SPENVIS Web Service.....	4
3.1.1	Normal SPENVIS Web Service.....	4
3.1.2	Advanced SPENVIS Web Service.....	4
3.1.3	New Classes of Web Service User.....	5
3.1.4	Web Advertising	5
3.2	SPENVIS Product Sale	6
3.3	SPENVIS Consultancy	7
4	TARGET CUSTOMERS	8
4.1	Customer Categorisation.....	8
5	BUSINESS MODEL ANALYSIS	9
5.1	Business Model Costs.....	9
5.1.1	Infrastructure.....	9
5.1.2	Helpdesk/Support Organisation.....	9
5.1.3	Marketing.....	10
5.1.4	Management	10
5.1.5	Total	10
5.2	Revenue Analysis	10
5.2.1	Model Description.....	10
5.2.2	Revenue Estimates	11
5.2.3	Advertising Revenue	11
5.3	Operational Software	11
6	STEPS TO IMPLEMENTATION.....	13

TABLE OF FIGURES

Figure 1.	SPENVIS Monthly Activity	3
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TABLE OF TABLES

Table 1.	Table of References	1
Table 2.	Table of Terms and Abbreviations	1
Table 3.	Historical SPENVIS Purchases	3
Table 4.	Expressions of Interest for Standalone Versions of SPENVIS	3
Table 5.	Current Licencing Scheme	7
Table 6.	Affiliation of Users Over Last Year	14
Table 7.	Affiliation of All Registered Users	19
Table 8.	Monthly User Activity by Organisation Affiliation	40
Table 9.	Monthly User Activity by User Name	50
Table 10.	Monthly SPENVIS Functionality Activity	66

1 INTRODUCTION

1.1 Scope and Purpose

This document is generated as part of Work Package (WP) 1220 of contract 19786/05/NL/GLC/jk. It details:

- The proposed business model for the commercialisation of the Space ENVironment Information System (SPENVIS); and
- The road map to its implementation.

1.2 Normative References

The following normative documents contain provisions which, through reference in this text, constitute provisions of this proposal. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references the latest edition of the publication referred to applies.

Table 1. Table of References

Normative Reference	Identifier	Title	Date
NR-1	CS1047 WP1210	SPENVIS Market Analysis	22 October 2007
NR-2	SPENVIS-CAD-SAS-001	SPENVIS Commercial Assessment	05 November 1997
NR-3	CS1047 WP1220 Revenue Model.xls	SPENVIS Revenue Model Analysis	28 August 2008

1.3 Glossary of Terms and Abbreviations

The following terms and abbreviations are used within this proposal.

Table 2. Table of Terms and Abbreviations

Term	Definition
BIRA	Belgisch Instituut voor Ruimte-Aëronomie / Institut d'Aéronomie Spatiale de Belgique / Belgian Institute for Space Aeronomy
CCN	Contract Change Notices
ESA	European Space Agency
ESTEC	European Space Research and Technology Centre
GSTP	General Support and Technology Programme
IPR	Intellectual Property Rights
SPENVIS	Space ENVironment Information System
User	This is used to denote a single SPENVIS access account irrespective of the number of people who use it.
WP	Work Package

2 SPENVIS BACKGROUND

SPENVIS is an ESA-sponsored web-based toolset developed by BIRA to provide standardised access to models of the hazardous space environment. It has been developed under several contracts and Contract Change Notices (CCNs) funded through the General Support and Technology Programme (GSTP) since 1996. ESA owns the Intellectual Property Rights (IPR) of the SPENVIS system. In order to execute this business model the exclusive worldwide commercialisation rights need to be assigned to BIRA.

The IPR and commercialisation rights of all models integrated into the SPENVIS system will need to be clarified as part of the implementation of any business model to ensure there is neither transgression of third party legal rights, nor any liability for royalties. In order to minimise the potential for liabilities, the business model will be based on the value provided by SPENVIS infrastructure, not on the sale of individual models.

The listing of Model and Data Providers in Appendix 3 has been generated from the SPENVIS system list of credits.

The current SPENVIS system (available at <http://www.spenvis.oma.be/spenvis/>) has been operational since 1996 and provides free and easy access to models of the hazardous space environment via integrated user-friendly interfaces based on standard HTML input and streamlined production of results (both in graphical and textual form), background information and on-line help, through the World Wide Web (WWW). The main features of the system are:

- Access via public computer networks via WWW to a centralised system;
- Easy-to-use input facilities making extensive use of default values for the various input parameters and hierarchical structuring of input;
- Identification of users allowing for the creation of personalised environments;
- Automatic and/or user-specified generation of output, both plots and tables, to be downloaded to the user's installation;
- Extensive on-line help and links to in-depth documentation;
- Interactive access to the ECSS E-10-04 standard on the space environment;
- Commercial availability of customized stand-alone Intranet versions.

The current contract will extend the present SPENVIS system as follows:

- The set of models will be extended and model access will be simplified;
- The access to and usage of the system will be improved through an updated interface;
- The satellite data base will be extended;
- A business plan for commercialisation will be developed and implemented.

2.1 Current Usage

The following figures are compiled from data captured from the SPENVIS system on 18 July 2008:

- The system has a total of 2,966 active users¹ of whom 72 can access the advanced functionality.
- Appendix 2 contains monthly usage data for all users and organisations for the year from 18 July 2007 to 17 July 2008.
 - In this year 541 different users accessed the system.
 - The daily usage of SPENVIS is shown in Figure 1, which shows the number of unique users per day collated by month.
- It is expected that the commercialisation of SPENVIS will be targeted towards these users and their affiliation.

¹ The use of a single user login by multiple people cannot be tracked. However, the activity on any single account will provide a good indication of the value it provides to the organisation.

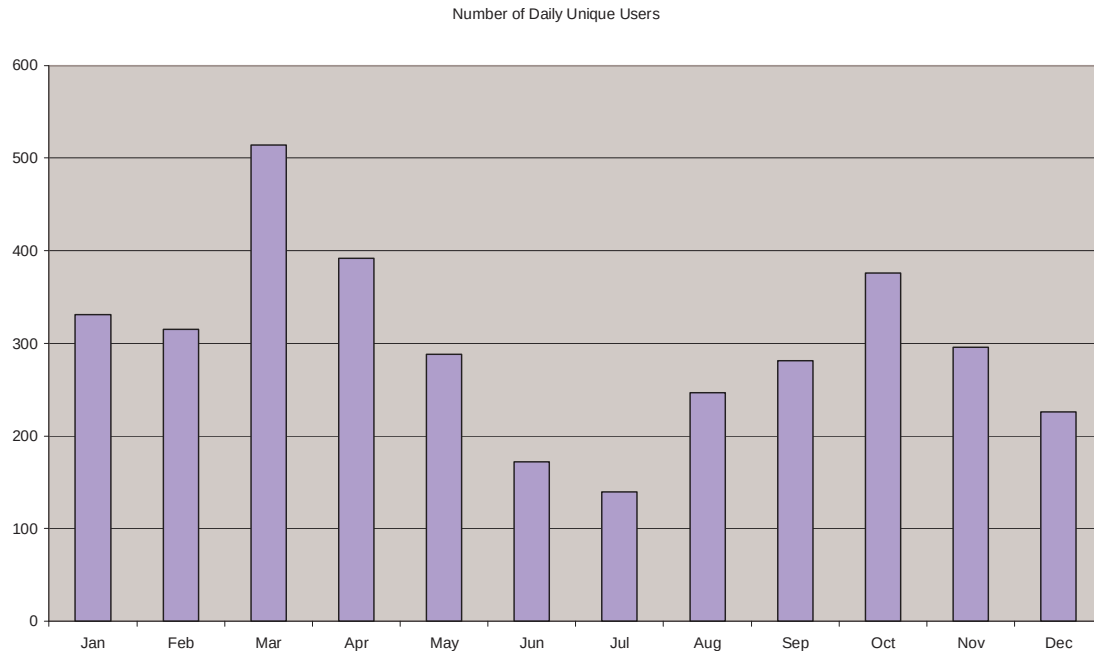


Figure 1. SPENVIS Monthly Activity

Table 3 shows previous purchases of standalone installations of SPENVIS.

Table 3. Historical SPENVIS Purchases

Name	Affiliation	Licence	Date	Price	Upgrade
Ignacio Prieto	Instituto Nacional de Técnica Aeroespacial (INTA) ²	educational single user	23-Dec-04	€ 2,000	€ 200
Pierre Leleux	CSR (UCL)	educational multiple user	28-Jun-05	€ 2,500	€ 250
Thomas Djamaluddin	Indonesia National Institute of Aeronautical and Space (LAPAN)	educational single user	01-Jul-05	€ 2,000	€ 200
Joseph Fennell	The Aerospace Corporation	commercial multiple users	22-Mar-06	€ 6,000	€ 600
Yanjun Feng	Chinese Academy of Space Technology (CAST)	commercial multiple users	27-Feb-06	€ 6,000	€ 600
Lawrence Polsky	ITT Aerospace/Communication	commercial multiple users	31-May-06	€ 6,000	€ 600

No formal licencing agreement is in place with any of these customers.

Table 4 contains a list of users who have expressed interest in purchasing standalone licences.

Table 4. Expressions of Interest for Standalone Versions of SPENVIS

Name	Affiliation
James A Hucker	Lockheed Martin (LM)
Lee Xuesheng	Peking University (PKU)
Sergio Esteve	Instituto Nacional de Técnica Aeroespacial (INTA)
M. Arend	Aeroeletronica S.A., Brazil

² Sergio Esteve has requested an update for the INTA installation.

3 BUSINESS MODEL DESCRIPTION

The business model for SPENVIS should be multi-faceted in order to allow discrimination from the current situation where the web-based usage is offered free of charge. Introducing the new business model at the same time as the improvements currently under development will make its adoption by the user community less disquietening.

The different services to be offered are described in the following sub-sections with the pricing analysis discussed in the next section along with the target customers.

3.1 SPENVIS Web Service

Currently, the web service supports two categories of user: Normal and Advanced. These categories are technically oriented and have not been delineated due to the inherent value of the various features. Many of the advanced features are removed from the normal user's view to simplify the usage of the toolset and improve the initial user experience.

The general description of the services provided to each level of user is described in the following 2 sub-sections.

3.1.1 Normal SPENVIS Web Service

This service should continue to provide the current functionality available to 'Normal' users i.e. access via a web-based service to the existing models. These can be grouped into general functional areas:

- Radiation Environment Models
- Radiation Effects Models
- Spacecraft Charging Models
- Magnetic Models
- Atmosphere and Ionosphere Models
- Meteoroid and Debris Models
- Solar Irradiance Models
- Miscellaneous Tools (Access to ECSS Standards, etc)
- Data Archives

3.1.2 Advanced SPENVIS Web Service

SPENVIS already supports the concept of advanced features through the concept of two levels of users and hiding certain model parameters from non-advanced users. The current scope of these advanced features is³:

- Orbit Generator:
 - Trajectory Uploads
 - Attitude vectors
 - Solar radiation pressure and atmospheric drag
 - Specify the two-line element
 - Specify the output resolution
 - Combined running of multiple models
- Radiation sources and effects:
 - Combined running of multiple models
 - Trapped radiation: AE-8 electron models with a local time dependence implemented by Vette
 - Solar proton models: Override the length of the prediction period and the start of the period with respect to the start of the solar maximum phase
 - EQFLUX: Option to upload a file with RDC coefficients
 - NEIL model: Option to define the proton equivalent energy
 - SSAT: Option to upload a GDML file
 - Ray tracing parameters: Option to define the orientation of the polar coordinate system with respect to the geometry Cartesian system

³ This list has been generated from a review of the SPENVIS help file, where advanced features are displayed in red.

- o Ray tracing parameters: Option to select the path length calculation mode
- o MULASSIS: Option to input a number of fine tuning parameters
- o MULASSIS: Option to make the simulation of these three spectra more efficient by adding the option for energy biasing
- o Physical models and production cut-offs: Option to choose all of the implemented physical models.
- o Production cut-off by region: Option to define the different cut-offs to be used by region
- o GEMAT: Option to make the simulation of the spectra generated by the trapped particle or solar proton models more efficient by adding the option for energy biasing
- o GEMAT: Option to select the Geant4 physical models and the production cut-offs
- o Ion energy and LET spectra: Option to select a higher output resolution

As this service has been provided free for many years. In order to diminish the dissatisfaction of customers being forced to pay for a previously free service, any new costed service should initially be linked to:

- The addition of new models;
- The update of current models; and
- The update of the SPENVIS infrastructure.

3.1.3 New Classes of Web Service User

It is proposed that the web service business model use three classes of user:

- Basic;
- Standard; and
- Professional

The level of functionality and usability should increase with each class, such that:

- **The Basic class** gives a new user an easy set of limited tools to gain an understanding of the scope and value of the toolset. The functionality at this level should be insufficient for educational or commercial use. One method of limiting the utility of this class is to only allow a single project that cannot be saved for re-use.
- **The Standard class** gives more utility, but is limited on resource usage and has a limited number of projects for saving data. The ability to simplify the user interface by being able to toggle between normal and advanced features should be provided.
- **The Professional class** gives full utility with greater, though not unlimited, use of system resources. The ability to simplify the user interface by being able to toggle between normal and advanced features should be provided.

3.1.4 Web Advertising

The users of the SPENVIS web service will be highly educated engineers and scientists with a common interest in Space activities. This could be a highly desirable target audience for certain web advertisers. This should be able to generate an additional revenue stream to support the infrastructure and operational costs.

This commercialisation of SPENVIS would require the removal of the ESA logo from the web site. However, an acknowledgement of ESA's role should be placed on the credits page.

3.1.4.1 Common Models

The following is a basic overview of each of the common revenue models for Web advertising. The recommended model and projected revenue is shown in Section 5.2.

3.1.4.1.1 Cost per Impression (CPM)

One of the simplest types of ad revenue, and the first to emerge when Web sites started advertising, is the CPM ad. The term CPM means cost per thousand impressions and refers to the amount you are paid for showing

1000 ads. For example, suppose an ad campaign pays €1.00 CPM. You would earn one tenth of one cent each time a user views the ad for a total of a Euro after a thousand views.

In practice, you may not earn the full amount for every impression: if this service is provided by an ad agency, they take a percentage of the income. Additionally, the model may only be for unique impressions - usually meaning you will only be paid the first time each unique visitor sees a particular ad.

Currently, €1 CPM is actually a pretty good rate for banner ads. Other ad formats, such as skyscrapers, pop-uppers, and pop-ups, should pay higher rates.

3.1.4.1.2 Cost per Click (CPC)

Some advertisers want to pay for immediate results rather than views. A cost per click (CPC) ad pays a certain amount (typically between a five and fifty cents) each time a user clicks on an ad. As with a CPM ad, the fee may only be paid for the first unique click from a particular user, and the ad agency may take a percentage.

Running a CPC ad presents an element of risk: if no users click the ad, no revenue is earned. Nonetheless, if an ad's target audience matches the audience of your site, the revenue may be more than low-end CPM ads.

Since the performance of CPC ads will vary widely between particular ads and particular sites, they are often discussed in terms of effective CPM. This is how much revenue an ad has generated based on the number of views. For example, if the site runs 1000 impressions of an ad that pays 25 cents per click and four users click on it, you have an effective CPM of €1.00.

3.1.4.1.3 Cost per Action (CPA)

While the site earns money instantly when a user clicks on a CPC ad, CPA (cost per action) ads require more of a commitment from the user. Revenue is generated each time a user completes a particular action - for example, completing a survey, signing up for a subscription, or buying a product.

CPA ads are typically used with affiliate programs. There are two basic types of CPA ad campaign:

- Cost per lead: You are paid each time a user signs up or provides contact information. This usually doesn't require a payment from the user. These programs typically pay somewhere between 50 cents and €3.00 per signup.
- Cost per sale: You are paid each time a user buys one or more products. The commission is usually a percentage of the sale price, so the amount you earn for a sale depends on how much the user spends.

Like CPC ads, the effectiveness of a CPA campaign depends on your audience. Some web sites make more money from affiliate programs than any other source, because they have found affiliate programs that closely match their audience. If a program does not fit the audience, the site may be running thousands of ads without a commission.

3.2 SPENVIS Product Sale

This sales model provides the same functionality as the normal and advanced Web services, but as a deliverable disk to the customer. Table 3 shows the current list of customers who are already utilising this model. This model has established a level of market expectation, so will be used as the baseline for analysing the profitability of the overall business case in Section 5.

The licencing is not enforced by any software, which would be desirable during any future business plan. In order to discriminate between a single user and multiple user models the licencing software would need to be able to tie the use of the software to a single machine that is not configured as a server, or to allow multiple users on a machine configured as a server. The ability to limit the number of users in a multi-user environment should also be available if this were part of the business model.

Currently, the delivery of SPENVIS as a stand-alone system requires lengthy support of the end-user during the installation process and results in unique configurations. The level of on-going support for these types of unique installations will be higher than for standard ones. Therefore, a method of delivering a standard installation should be developed and any exceptions from this standard install should require an increased annual fee.

Table 5. Current Licencing Scheme

	Commercial Licence		Educational Licence	
	Licence Cost	Upgrade Cost	Licence Cost	Upgrade Cost
Single User			€ 2,000	€ 200
Multiple User	€ 6,000	€ 600	€ 2,500	€ 250

The current model has a simple upgrade cost, which does not provide a continual revenue stream and requires active effort on the part of the support organisation to persuade users to take upgrades: if users do not take (and pay for) every upgrade they can reduce their cost by only taking every other (or third, or fourth, ...) upgrade. If this scheme is continued, this upgrade fee should be converted into an annual maintenance fee. Fees for maintenance of this type typically are in the 15-20% range.

An alternative model is an annual subscription service where there is no upfront licence fee, but the annual charge is higher. This type of licencing is typical for virus and spam checking software. This licencing model would impose less of a shock to the existing user-base, as there is a lower up-front fee.

3.3 SPENVIS Consultancy

This sales model provides the customer with the ability to outsource the use of the toolset to a third party company who can generate the results directly applicable to the customer's requirements. For example, the consultant would generate the design of the enclosure for an on-board computer that would reduce the likelihood of a single event upset to the main memory to below 10^{-8} over the 5-year lifetime of a spacecraft in a Molniya orbit.

This consultancy service would require engineers with a demonstrable proficiency in the use of the toolset for the solution of real issues pertinent to the potential customer base.

During the initial start up it is not expected that the workload generated by this consultancy service will cover a full-time person, or that any future work (once the service is established) will cover exact numbers of consultants. Given this, any company trying to commercialise this service will need to have alternative work for the consultant(s) during off-charge time.

4 TARGET CUSTOMERS

NR1 provided a breakdown of users by: affiliation; and geographical area. This together with the data in Appendices 1 and 2 can be used to identify the most likely potential customers.

4.1 Customer Categorisation

- **ESA Divisions:** Although ESA owns the IP for SPENVIS, there is the potential to sell consultancy services. There may also be interest in 'cross-charging' other groups outside of TEC-EES for use of the toolset, but this would be an internal ESA financial exercise with little scope for commercialisation.
- **Educational Establishments:** The largest users of SPENVIS (both in terms of the number of registered users and actual usage) are educational establishments. These customers tend to profess abject poverty and expect a significant discount from any published commercial prices.
- **Commercial Companies:** The large commercial customers who have many users would be good candidates for company-wide site licences. However, identifying the decision-makers for these types of infrastructure licences can be difficult due to:
 - Many of these are amalgamations of several companies that aren't well integrated; and
 - Most budgets are project-oriented, not cross-company

The only anticipated market for the SPENVIS Consultancy service (Section 3.3) will be commercial companies.

5 BUSINESS MODEL ANALYSIS

The first three business models (Sections 3.1 to 3.2) are similar in that they are the provision of functionality for a fee. For this model to be successful these fees must cover all costs associated with selling and supporting those models plus an acceptable amount of profit for the supporting company.

The cost categories associated with these models can be grouped as follows:

- Infrastructure:
 - Hardware (Servers, Internet connectivity, etc.)
 - Software (O/S, web server, 3rd party products)
 - Model licencing costs (if necessary)
 - Maintenance (upgrades, backups, housekeeping)
 - Internet access
- SPENVIS evolution
 - Incorporation of new models, upgraded models
- SPENVIS maintenance
 - Bug fixing
- SPENVIS support
 - Training
 - Helpdesk
- Model support
 - Scientific assistance
- Marketing and sales

The consultancy service relies on the availability of the SPENVIS functionality supported by the first three business models, so no costs associated with those should be attributable to this business model. This model merely needs to support the additional costs associated with the provision of this service. I.e.:

- Identification of suitable resource(s)
- Recruitment
- Training
- Infrastructure:
 - Office space and services
 - IT equipment
- Marketing and sales

The marketing and sales effort and cost will be significantly higher for the consultancy service as it is a new service not already known to the current SPENVIS user community and will need face-to-face meetings with potential customers to ensure they understand the full scope of the capabilities they will receive.

5.1 Business Model Costs

This section analyses the costs involved in the support of the business model for the web services and product sales. The cost of the consultancy service is highly dependent upon the cost of the identified resource with an allocation for sales costs and the SPENVIS licence being utilised by the consultant.

5.1.1 Infrastructure

The level of traffic on the web site (300-650 monthly activities) would not be enough to require a significant upgrade of the hosting company's Internet access, so the incremental costs for the SPENVIS infrastructure is limited to the service's dedicated servers. Providing two servers: one prime and one redundant/development with all necessary software (O/S, applications and development tools) would require an annual budget not in excess of €15,000.

5.1.2 Helpdesk/Support Organisation

This organisation needs to provide standard business day support by phone, mail and user forum. This first line support needs to be augmented with second line maintenance that will develop, test and deliver patches and upgrades on a regular basis. An example of the type of maintenance support that this organisation will need to provide is shown in Appendix 4.

It is expected that this support could be provided by a single engineer who has expertise in both IT support and the SPENVIS operation: this engineer is not expected to have detailed knowledge of the models used in SPENVIS, nor the science behind them. However, they should have contact details for all model providers to provide to users who need support of this type. It would also be possible to refer the enquirer to the consultancy services provided by the business model in Section 3.3.

The annual cost of this engineer should not exceed €120,000

5.1.3 Marketing

The development and implementation of an effective marketing and advertising plan with all associated materials is necessary to ensure the smoothest transition from the current situation to the fully user supported model. The budget for this needs to cover:

- Marketeer (50%): €50,000
- Conference participation: €10,000
- Marketing materials design and production: €10,000

5.1.4 Management

The proper execution of this business model will require a management and administrative overhead. The main area of effort will be in the administration of the many contracts involved in the service. The revenue models below will involve the generation of 100 to 300 individual contracts, as a cost effect management of this process is essential. The management of this service should not exceed €40,000.

5.1.5 Total

The total annual cost for supporting the Web Service and Product Sales business models is **€245,000**.

5.2 Revenue Analysis

The following analysis is based upon the numbers of active users for the last year. The summary figures shown in this section have been generated using a revenue model contained in NR-3, which is delivered with this document.

5.2.1 Model Description

The Web services are priced on an annual fee, as this provides a simple model with the minimum of administrative overhead (per use, or processor activity based models would require complex automated billing systems that require individual users to pay at the point of sale. The users tend to work in an environment where the company they work for pay for services via a more traditional invoicing system.)

The product sales use two different models:

- An up-front licence fee with an annual maintenance fee; or
- An annual subscription service.

The model uses the following logic:

- The Basic web service should be free in all cases⁴;
- The product sale maintenance fee is 20% of the licence fee;

⁴ All current SPENVIS users who do not sign up for another level of service will be 'downgraded' to this service at some point. It is assumed in all cases that the 2425 users who have not accessed the system in the last year will be downgraded.

- A product sale for a single user should have an annual maintenance fee that is equal to the Professional Web Service annual fee;
- A product sale for multiple users is based on the price of 5 single user sales;
- The product sale annual subscription fee is 50% more than the equivalent maintenance fee;
- It is assumed that entities with more than 5 users will either buy a multi user licence, or fewer than 5 individual licences; and
- When an entity with more than 5 users does not buy a multi-user licence, they will buy, on average, 4 single user licences.

5.2.2 Revenue Estimates

The following table gives Pessimistic, Realistic and Optimistic expectations for annual revenue using the subscription model for licence sales. The pessimistic figure gives a total revenue that would cover the costs identified in Section 5.1 together with a corporate overhead of 25% i.e. **€ 306,250**.

	Pessimistic			Realistic			Optimistic		
	Price	No.	Revenue	Price	No.	Revenue	Price	No.	Revenue
Web Service									
Basic ⁵	€0	175	€0	€0	144	€0	€0	89	€0
Standard	€750	130	€97,500	€1,000	144	€144,000	€1,000	160	€180,000
Professional	€1,500	33	€49,500	€2,000	36	€72,000	€2,000	53	€106,000
Product									
MultiUser Licence	€11,250	8	€90,000	€15,000	11	€165,000	€15,000	12	€180,000
SingleUser Licence	€2,250	33	€74,250	€3,000	36	€108,000	€3,000	53	€159,000
Total			€311,250			€489,000			€605,000

5.2.3 Advertising Revenue

The model that would generate the most reliable source of income is the CPM model where revenue is generated for each visitor to the web site. Assuming a user is shown an average of 4 unique ads per visit and the total number of unique daily visits by users in Table 9, the expected annual revenue will be $4 \times 3500 / 1000 = €14$.

This may be expected to increase as the marketing of SPENVIS becomes more active, but it is not expected to become a significant revenue generator for this business model.

5.3 Operational Software

As can be seen from the analysis in Section 5.1, there is a considerable cost associated with the commercialisation of SPENVIS. In order to generate the revenue that would cover these costs the commercialisation company would need to have exclusive rights to the product. The current SPENVIS contract specifies in Clause 42.9 that BIRA only has the right to request “a non-exclusive, irrevocable, free, worldwide

⁵ This number does not include the 2425 users who have not accessed the system in the last year.

licence". This is insufficient to allow the required investment in the business model, as any company from an ESA member country can request a usage licence from ESA for free. For the commercial exploitation of SPENVIS to proceed, ESA must provide an exclusive, worldwide licence for at least some defined period of time e.g. 5-10 years.

6 STEPS TO IMPLEMENTATION

The following action plan identifies the major items to be performed as part of the successful implementation and execution of the SPENVIS Business Plan:

- All parties agree the execution of the Business Plan, as defined in this document and subsequent amendments.
- ESA provide BIRA with the Worldwide exclusive commercialisation rights and commit to preventing the use of unofficial copies of SPENVIS by any entity outside ESA.
- Provide currently interested customers with an interim solution.
- Identify and implement the functionality to be provided in the web service categories (Basic, Standard and Professional).
- Identify and implement a simplified delivery mechanism for product sales.
- Gain agreement of all model providers for the inclusion of their models.
- Implement the infrastructure, helpdesk and administrative support organisations.
- Develop marketing materials.
- Start marketing process with current customers.
- Implement a phase-in of new model.
- Phase out old model.

Appendix 1: User Affiliation

Table 6. Affiliation of Users Over Last Year

Affiliation	Number Of Users
Swedish Institute of Space Physics	59
University of Michigan	19
Technical University Denmark	17
European Space Research and Technology Centre	13
The Aerospace Corporation	13
Astrium GmbH	11
Belgian Institute for Space Aeronomy	9
Boeing, Inc.	9
Jet Propulsion Laboratory	8
Goddard Space Flight Center	8
Raytheon	7
Lockheed Martin	6
Indian Space Research Organisation	5
Deutsche Zentrum für Luft- und Raumfahrt	5
QinetiQ	5
Ball Aerospace & Technology Corp.	5
MacDonald Dettwiler and Associates	4
Laboratory for Atmospheric and Space Physics	4
Brunel University	4
The Johns Hopkins University	4
Orbital Sciences Corp.	4
Defence Evaluation and Research Agency	4
Massachusetts Institute of Technology	4
Center for Advanced Research in Space Optics	4
NASA	4
Naval Research Laboratory	3
ITT Aerospace/Communication	3
Space Research Institute	3
Southwest Research Institute	3
Terma Elektronik AS	3
Northrop Grumman	3
Alcatel Space Industries	3
Boston University	3
Spectrolab	3
Space Sciences Laboratory, University of California	3
Commissariat à l'Energie Atomique	3
Delft University of Technology	3
Democritus University of Thrace	3
Unknown	3
OHB System GmbH	3
Swales Aerospace	3
Saab Ericsson Space	2
York University	2
Physical Sciences Inc.	2

Affiliation	Number Of Users
Officine Galileo	2
SEAKR Engineering, Inc	2
Peking University	2
Routes AstroEngineering	2
Politecnico di Torino	2
Kayser-Threde GmbH	2
Institute of Space and Astronautical Science	2
Alenia Aerospazio	2
Astrium SAS France	2
Astrium UK	2
Carlo Gavazzi Space SpA	2
Center for Space Radiations	2
Centre d'Etude Spatiale des Rayonnements	2
Chinese Academy Of Sciences	2
Christian-Albrechts-Universität zu Kiel	2
Comision Nacional de Energia Atomica	2
Laben	2
Institute of High Energy Physics	2
Mitsubishi Electric Corporation	2
Instituto Nacional de Pesquisas Espaciais	2
Instituto Nacional de Técnica Aeroespacial	2
Istituto Nazionale di Fisica Nucleare	2
Mitsubishi Precision Co., Ltd	2
Korea Aerospace Research Institute	2
Space Environment Prediction Center	2
Lulea University of Technology	2
Marshall Space Flight Center	2
Max-Planck-Institut f. Extraterr. Physik	2
MDRobotics	2
General Dynamics C4 Systems	2
Tokyo Institute of Technology	2
Unknown United States	2
University of Southern California	2
University of California Santa Cruz	2
Telesat Canada	2
Tsinghua University	2
Tesat-Spacecom GmbH & Co.KG	2
The Charles Stark Draper Laboratory, Inc.	2
Surrey Satellite Technology Ltd	2
University of Leicester	2
University of Rome La Sapienza	2
Stapor Research, Inc.	2
Université de Montpellier II	2
Universidad Politecnica de Catalunya	2
EFACEC	1
ELV SpA	1
EDO Corp. Electronics Systems Group	1
Emcore	1

Affiliation	Number Of Users
DutchSpace, Leiden	1
Dutch Space bv	1
DSS Dornier Satellitensysteme	1
DSO National Laboratories	1
DPL Science Inc.	1
University of New Hampshire	1
Delta-Utec Space Research & Consultancy	1
E.M.P. Consultants	1
GMV, S.A.	1
Institut National de Physique Nucleaire et de Physique des Particules	1
Institut de Physique Nucléaire	1
Universiti Sains Malaysia	1
Indonesia National Institute of Aeronautical and Space (LAPAN Bandung)	1
University of Alberta	1
IHI Aerospace Co., Ltd.	1
Honeybee Robotics	1
Hitachi Ltd.	1
HAS KFKI Atomic Energy Research Institute	1
European Space Operations Centre (ESOC)	1
University of Alcalá	1
EMS Technologies Canada Ltd	1
Glenn Research Center	1
General Research Institute for Non-ferrous Metals	1
University of California	1
Fudan University	1
Fokker Space	1
Facultad de Ingenieria Universidad de Buenos Aires	1
Cornell University	1
Fachhochschule Aachen	1
University of Newcastle	1
Harbin Institute of Technology	1
Vanderbilt University School of Engineering	1
Danish Space Research Institute	1
Blue Apogee Science	1
Bilten Information Technologies and Electronics Research Institute	1
Bigelow Aerospace	1
Unknown Germany	1
Beijing Institute of Spacecraft Environment Engineering	1
BAE Systems Controls	1
Avery Dennison	1
University of Zaragoza	1
Valencia University	1
Bristol Aerospace Ltd.	1
Verhaert d&d	1
Arizona State University	1
Alta Space S.P.A.	1
Washington University	1

Affiliation	Number Of Users
Xian Jiaotong University	1
Air Force Research Laboratory	1
Aeroeletronica S.A.	1
Aboa Space Research Oy	1
Able Engineering Company	1
Atomic Institute of the Austrian Universities	1
Centre Spatial de Liege	1
University of Padova	1
Cranfield University	1
Ishikawajima-harima Heavy Industries Co.,Ltd.	1
University of Rome Tor Vergata	1
Comisi3n Nacional de Actividades Espaciales	1
CISAS - Center of Studies and Activities for Space - G.Colombo	1
University of Science and Technology of China	1
University of Sharif	1
University RomaTre	1
Centro Tecnico Aeroespacial	1
Deimos Engenharia	1
Centre for Astrophysics and Space Science	1
Center for Space Science and Applied Research	1
University of Surrey	1
University of Tokyo	1
University of Toronto	1
Canadian Space Agency	1
Cairo University	1
University of Turku	1
Broad Reach Engineering	1
Chalmers University of Technology	1
Orbital Engenharia Ltda	1
National Research Institute of Astronomy and Geophysics	1
St.Petersburg State University	1
Purdue University	1
Princeton University	1
Stanford University	1
Physikalisches Institut, Unibern	1
Physical Research Laboratory	1
Petersburg Nuclear Physics Institute	1
Spectrum Astro Inc.	1
Stockholm University	1
Ridgetop Group Inc.	1
Old Dominion University	1
Swedish Space Corporation	1
Office National d'Etudes et de Recherches A3rospatiales	1
Systems Engineering and Assessment Ltd	1
New Skies Satellites	1
NEC/Toshiba Space Systems, Ltd.	1
NEC Corporation	1
Universit3 Degli Studi del Piemonte Orientale	1

Affiliation	Number Of Users
StarVision Technologies	1
Space Research Organization Netherlands	1
Space Physics Laboratory	1
Space Research Institute, Auburn, USA	1
Soreq Nuclear Research Center	1
Solar Terrestrial Influences Laboratory	1
Sodern	1
Soci��t�� Europ��enne des Satellites	1
Skobeltsyn Institute of Nuclear Physics	1
Sira Electro-Optics Ltd.	1
QSS Group, Inc.	1
SFA Inc.	1
National Institute for Physics and Nuclear Engineering	1
Science Applications International Corporation	1
Satreci	1
Space Science & Engineering Lab Montana State University	1
RWE Space Solar Power	1
Rutherford Appleton Laboratory	1
Royal Institute of Technology	1
SpaceWx	1
Riverside Research Institute	1
SGT Inc.	1
Japan Aerospace Exploration Agency	1
Technical University of Munich	1
Langley Research Center	1
Lan Zhou University	1
Trad	1
Korea Advanced Institute of Science and Technology - KAIST	1
Kearfott Guidance & Navigation	1
Turksat Satellite Communication and Cable TV Operation AS	1
Katholieke Universiteit Leuven	1
Lawrence Berkeley National Laboratory	1
Jena-Optronik GmbH	1
Thomson-Nielsen Elec.	1
Jacobs Engineering Group Inc.	1
Universidad Politecnica de Madrid	1
Istituto Nazionale di Astrofisica	1
Istituto di Scienza e Tecnologie	1
Space Micro Inc.	1
INVAP	1
Mission Research Corporation	1
Universit�� de Li��ge	1
United States Naval Academy	1
Microwave Laboratory, UCL, Louvain-la-Neuve	1
National Authority for Remote Sensing and Space Sciences	1
National Astronomical Observatory	1
Technion, Israel Institute of Technology	1
Nanjing University of Aeronautics and Astronautics	1

Affiliation	Number Of Users
Mullard Space Science Laboratory	1
Technische Universität Dresden	1
Technischen Universität Berlin	1
"Yuznoe" Design Office	1
Lavochkin Science & Production Association	1
Mier Comunicaciones, S.A.	1
Instituto Geofísico del Perú	1
MicroSat Systems Inc.	1
Telenor	1
Max-Planck Institute of Astronomy	1
Matra Marconi Space	1
Tether Applications, Inc.	1
The MITRE Corporation	1
Loral	1
Lockheed Martin Solar and Astrophysics Laboratory	1
Missile Defense Agency	1

Table 7. Affiliation of All Registered Users

Affiliation	Number of Users
University of Michigan	123
University of Southern California	112
Swedish Institute of Space Physics	70
Boeing, Inc.	60
European Space Research and Technology Centre	58
Lockheed Martin	52
The Aerospace Corporation	47
Goddard Space Flight Center	47
Lulea University of Technology	45
Jet Propulsion Laboratory	39
York University	30
Orbital Sciences Corp.	29
NASA	28
Alenia Aerospazio	25
Istituto Nazionale di Fisica Nucleare	25
Technical University Denmark	24
Astrium UK	22
The Johns Hopkins University	22
University of Rome La Sapienza	21
Raytheon	20
Astrium GmbH	19
Center for Advanced Research in Space Optics	18
Chalmers University of Technology	18
Northrop Grumman	17

Affiliation	Number of Users
Massachusetts Institute of Technology	17
Marshall Space Flight Center	17
Belgian Institute for Space Aeronomy	17
Indian Space Research Organisation	17
OHB System GmbH	16
Surrey Satellite Technology Ltd	15
Delft University of Technology	15
Aalborg University	15
Umeå Universitet	14
Space Research Institute	13
QinetiQ	13
Swales Aerospace	13
MacDonald Dettwiler and Associates	12
Alcatel Space Industries	12
Université de Liège	12
Naval Research Laboratory	12
Deutsches Zentrum für Luft- und Raumfahrt	11
Officine Galileo	11
University of Toronto	11
Centre Spatial de Liège	10
Langley Research Center	10
Carlo Gavazzi Space SpA	10
Spectrum Astro Inc.	10
Korea Aerospace Research Institute	10
University of Southampton	10
Université de Montpellier II	10
Saab Ericsson Space	10
Ball Aerospace & Technology Corp.	10
INVAP	10
ITT Aerospace/Communication	10
Air Force Research Laboratory	10
European Organization for Nuclear Research	9
Honeywell	9
Boston University	9
Mullard Space Science Laboratory	9
Kayser-Threde GmbH	9
Science Applications International Corporation	9
Japan Aerospace Exploration Agency	9
Laboratory for Atmospheric and Space Physics	9
Queensland University of Technology	9
University of Leicester	8
Skobeltsyn Institute of Nuclear Physics	8
Washington University	8

Affiliation	Number of Users
Defence Evaluation and Research Agency	8
Los Alamos National Laboratory	8
Technical University of Munich	8
The Charles Stark Draper Laboratory, Inc.	8
Institute of High Energy Physics	8
Institute of Space and Astronautical Science	7
Bigelow Aerospace	7
Astrium SAS France	7
Moscow State Engineering Physics Institute	7
Chinese Academy Of Sciences	7
Mission Research Corporation	7
Laben	7
Center for Space Science and Applied Research	7
Space Environment Prediction Center	7
Rutherford Appleton Laboratory	7
Unknown	7
Peking University	7
Universidad Politecnica de Catalunya	7
Johnson Space Center	7
Virginia Polytechnic Institute and State University	7
Swedish Space Corporation	7
Politecnico di Milano	7
Cairo University	6
Technischen Universität Berlin	6
Technische Universität Braunschweig	6
Mitsubishi Electric Corporation	6
NEC/Toshiba Space Systems, Ltd.	6
The Pennsylvania State University	6
Tokyo Institute of Technology	6
University College of London	6
Tesat-Spacecom GmbH & Co.KG	6
Centre National d'Etudes Spatiales	6
Space Sciences Laboratory, University of California	6
SENER	6
Office National d'Etudes et de Recherches Aérospatiales	6
Commissariat à l'Energie Atomique	6
Sandia National Laboratories	6
Centre d'Etude Spatiale des Rayonnements	6
Spectrolab	6
Instituto Nacional de Pesquisas Espaciais	6
University of California	6
AeroAstro	6
Danish Space Research Institute	5

Affiliation	Number of Users
Comision Nacional de Energia Atomica	5
Terma Elektronik AS	5
Paul Scherrer Institute	5
Royal Institute of Technology	5
MDRobotics	5
Instituto Nacional de T�cnica Aeroespacial	5
Politecnico di Torino	5
MicroSat Systems Inc.	5
Brunel University	5
Warsaw University of Technology	5
University of Tokyo	5
Advatech Pacific, Inc.	5
Unknown United States	5
Kingston University London	5
Tsinghua University	5
University of New Hampshire	5
Stanford University	5
Naval Postgraduate School	5
Soreq Nuclear Research Center	5
Hankuk Aviation University	5
DutchSpace, Leiden	5
University of New South Wales	5
University of Alberta	5
Southwest Research Institute	5
Technion, Israel Institute of Technology	5
Universita di Napoli Federico II	5
Katholieke Universiteit Leuven	5
EMS Technologies Canada Ltd	4
EADS Launch Vehicles	4
Cranfield University	4
Stanford Linear Accelerator Center	4
Cornell University	4
Stapor Research, Inc.	4
Space Micro Inc.	4
ELV SpA	4
National Space Program Office	4
Physikalisches Institut, Unibern	4
Colorado State University	4
Embry-Riddle Aeronautical University	4
Christian-Albrechts-Universit�t zu Kiel	4
EADS Space Transportation	4
Swiss Federal Institute of Technology	4
Universiti Sains Malaysia	4

Affiliation	Number of Users
University of Padova	4
Harvard-Smithsonian Center for Astrophysics	4
Universita Degli Studi Di Pisa	4
University of Rome Tor Vergata	4
University of California Los Angeles	4
Freelance	4
Max-Planck-Institut f. Extraterr. Physik	4
University of Surrey	4
University of Maryland	4
ATK Mission Research	4
International Space University	4
Harbin Institute of Technology	4
Valencia University	4
Fokker Space	4
BAE Systems Controls	4
United States Naval Academy	4
Verhaert d&d	4
Arizona State University	4
Beijing University of Aeronautics and Astronautics	4
Belgian Nuclear Research Center	4
University of Helsinki	4
Utah State University	4
University of Houston	4
Centre National de la Recherche Scientifique	3
Carleton University	3
University of Colorado	3
University of Glasgow	3
University of Nevada, Las Vegas	3
Laboratório de Instrumentação e Física Experimental de Partículas	3
GMV, S.A.	3
NPOPM	3
SpaceDev Corp.	3
Space Research Institute, Auburn, USA	3
TRW	3
Space Research Organization Netherlands	3
ARC Seibersdorf Research GmbH	3
Andrews Space Company	3
Saint Louis University	3
Research Systems, Inc.	3
Institut für Geophysik und ExtraTerrestrische Physik	3
Institut National de Physique Nucleaire et de Physique des Particules	3
Rochester Institute of Technology	3

Affiliation	Number of Users
Routes AstroEngineering	3
Wuhan University	3
Royal Observatory of Belgium	3
Indonesia National Institute of Aeronautical and Space (LAPAN Bandung)	3
Purdue University	3
Orbital Engenharia Ltda	3
Indian Institute of Technology	3
Centrum Badan Kosmicznych, Polish Academy of Sciences	3
Princeton University	3
Vanderbilt University School of Engineering	3
Unknown Italy	3
Comisi3n Nacional de Actividades Espaciales	3
Democritus University of Thrace	3
Physical Sciences Inc.	3
Physical Research Laboratory	3
Patria Finavitec Oy Systems	3
University of Kansas	3
Jackson & Tull	3
Punjab University Lahore	3
Texas Tech University	3
Universit� Catholique de Louvain-la-neuve	3
Universita di Trieste	3
Technische Universit�t Dresden	3
Universita Degli Studi Di Perugia	3
Teldix	3
Max-Planck Institute of Aeronomy	3
Sverdrup Technology Inc.	3
Fermi National Accelerator Laboratory	3
Telesat Canada	3
Thales Space Technology (formerly Pilkington Space Technology)	3
Nanyang Technological University	3
European Space Operations Centre (ESOC)	3
Tsinghua University, Beijing	3
Trad	3
Mitsubishi Precision Co., Ltd	3
Canadian Space Agency	3
University of Alcala	3
Lawrence Berkeley National Laboratory	3
Caltech	3
Stuttgart University	3
NEC Corporation	3
Ecole Nationale Sup�rieure de l'aeronautique et de l'espace	3

Affiliation	Number of Users
General Dynamics C4 Systems	3
Astronautic Technology Sdn. Bhd.	3
University of Birmingham	3
Rhea System S.A.	2
Delta-Utec Space Research & Consultancy	2
National Astronomical Observatory	2
National Aerospace Laboratory	2
IHI Aerospace Co., Ltd.	2
Georgia Tech	2
ZIN Technologies	2
Fachhochschule Aachen	2
Deimos Engenharia	2
Michigan Technological University	2
International Centre for Theoretical Physics	2
Mier Comunicaciones, S.A.	2
Emma Willard School	2
Lavochkin Science & Production Association	2
Iranian Research Organisation of Science & Technology (IROST)	2
Mississippi State University	2
Emcore	2
Engineering College of Copenhagen	2
eta_max	2
Esys Consulting	2
Indra Espacio	2
Instituto de Desenvolvimento de Novas Tecnologias	2
Institute of Nuclear Physics, Krakow	2
MPB Technologies Inc.	2
Institut für Astronomie und Astrophysik Tübingen	2
ENTECH, Inc.	2
Private use	2
Lusospace Aerospace Technology	2
iRoC Technologies	2
General Research Institute for Non-ferrous Metals	2
Old Dominion University	2
Harris	2
Glenn Research Center	2
Ehime University, Matsuyama	2
Oerlikon Schweisstechnik GmbH	2
Opto Electronics S.A.	2
Oceanering Space Systems, Houston	2
Korea Advanced Institute of Science and Technology - KAIST	2
Lucent Technologies	2
EDO Corp. Electronics Systems Group	2

Affiliation	Number of Users
Observatoire de Paris	2
Lockheed Martin Solar and Astrophysics Laboratory	2
Kirtland Air Force Base	2
Istituto di Fisica dello Spazio Interplanetario	2
Istituto Nazionale di Astrofisica	2
Honeybee Robotics	2
DSO National Laboratories	2
Facultad de Ingenieria Universidad de Buenos Aires	2
Design and Development Engineering Services	2
Edwards Air Force Base	2
Hogeschool Inholland	2
Dutch Space bv	2
National Institute for Physics and Nuclear Engineering	2
Norwegian University of Science and Technology	2
Laboratoire de Physique Subatomique et de Cosmologie (former ISN)	2
Osservatorio Astronomico di Trieste	2
DPNC - University of Geneva	2
Jena-Optronik GmbH	2
Istanbul Technical University	2
Centrospace	2
Space Telescope Science Institute	2
Space Science & Engineering Lab Montana State University	2
University of Turku	2
University of Virginia	2
BEI Precision Systems and Space Division	2
Centro Elettrotecnico Sperimentale Italiano	2
Centro Tecnico Aerospacial	2
Unknown Russia	2
University of Zaragoza	2
Beijing Institute of Spacecraft Environment Engineering	2
Air Force Institute of Technology	2
Solar Terrestrial Influences Laboratory	2
Bristol Aerospace Ltd.	2
Sodern	2
Stellenbosch University	2
University of Illinois	2
United States Air Force	2
Space Dynamics Laboratory	2
University of Sharif	2
Texas A&M University	2
Broad Reach Engineering	2
University of Oslo	2
University of Otago	2

Affiliation	Number of Users
Brigham Young University	2
Tecnomare S.p.A.	2
Tecnologica Componentes Electronios	2
Beijing Astronomical Observatory	2
Thomson-Nielsen Elec.	2
Center for Space Radiations	2
Student Space Exploration and Technology Initiative	2
Stockholm University	2
TOP-REL Srl	2
Atmel Corporation	2
University of Massachusetts Lowell	2
Universidad Miguel Hern�andez de Elche	2
University of Siegen	2
Soci�t� Europ�enne des Satellites	2
Systems Engineering and Assessment Ltd	2
SEAKR Engineering, Inc	2
Universidade do Porto	2
University of Aarhus	2
Russian Space Research Institute	2
Charles University, CZ	2
Uppsala Universitet	2
ABB Bommel	2
Satreco	2
University of Alabama in Huntsville	2
VILSPA	2
Scientific Institute University of Bremen	2
Able Engineering Company	2
Austrian Aerospace	2
Universidad Politecnica de Madrid	2
Scientific Research Institute for Precision Instruments	2
Shanghai University	2
Chinese Academy of Space Technology	2
Universit�t zu K�ln	2
Univeristy of Wisconsin	2
Astrophysics Imperial College London	2
Sensitron Semiconductor	2
CISAS - Center of Studies and Activities for Space - G.Colombo	2
Cosine Research, Leiden	2
Aerojet	2
Auburn University	2
G & S Associates	1
Fudan University	1
Fundamental Technologies, LLC	1

Affiliation	Number of Users
Anna University India	1
Applied Space Technology, Ltd.	1
Astronomical Institute Academy Of Sciences of the Czech Republic	1
Arbeitskreis Amateurfunk und Telekommunikation in der Schule	1
Analyses et Concepts Mathématiques SA	1
Analex Corporation	1
GP50 Transducers and Transmitters	1
General Dynamics Ordnance and Tactical Systems	1
Assurance Technology Corporation	1
Asia Satellite Telecom	1
GEOSPACE Austria	1
George Mason University	1
Astro Research Cororation	1
Astro- und Feinwerktechnik Adlershof GmbH	1
Astrokeys	1
Arctic Slope Regional Corporation (ASRC) Aerospace Corporation	1
Argelander-Institut für Astronomie der Universität Bonn	1
G&L Technology Ltd.	1
General Dynamics Electronic Systems	1
Gesec R&D Inc.	1
Astronautic Technology	1
Global Aerospace Corporation	1
Globalstar LP	1
General Dynamics Advanced Information Systems	1
GE Panametrics	1
Argon ST	1
Aboa Space Research Oy	1
Alcatel Spain	1
Imperial College	1
Incka Groupe Robinson	1
Aeroflex Laboratories	1
Indiana University Cyclotron Facility	1
Aeroeletronica S.A.	1
Advancing National Strategies and Enabling Results	1
Adcole Corporation	1
Infoscitex Corporation	1
ACRA Control Ltd.	1
ILC Dover Inc.	1
Ingegneria Marketing Tecnologica - IMTsrl	1
Aerospace Testing Alliance	1
Ingeniería y Servicios Aeroespaciales, S.A.	1
Innovative Solutions In Space	1
Innovative Technology Center for Radiation Safety	1

Affiliation	Number of Users
Innovative Technology Systems	1
Institut de Physique du Globe de Paris	1
Institut de Physique Nucléaire	1
Institut de Recherches Subatomiques	1
A3E Student Association for the Spacial Exploration	1
École Polytechnique	1
3C Systems Company	1
Ingegneria dei Sistemi	1
Alcatel Space Denmark	1
Hanscom AFB.	1
Ames Research Center	1
Amateur	1
Alta Space S.P.A.	1
HAS KFKI Atomic Energy Research Institute	1
Haute Ecole Valaisanne	1
Alfred Deakin High	1
Alexandria University, Egypt	1
Heidelberg University of Applied Sciences	1
Heinrich Heine Universität Düsseldorf	1
Aerosekur	1
Highftech Engineering	1
Amptek	1
Alabama Agricultural and Mechanical University	1
Al Azhar University	1
Hirex Engineering	1
Hogskolen i Narvik	1
Aitech Space Systems Inc.	1
Hokkaido University	1
AIEM Srl	1
AGF	1
Hovemere Ltd.	1
HTS GmbH	1
Helsinki University of Technology	1
Centro Brasileiro de Pesquisas Físicas	1
Department of National Defence	1
Chinese Chemistry Project School	1
China Electronics Standardization Institute	1
Diehl	1
Digital Nemesis Pty Ltd	1
Digitale Signalverarbeitungssysteme & Informationstechnik GmbH	1
Dolphin Interconnect Solutions AS	1
DPL Science Inc.	1
China Astronautics Standardization Institute	1

Affiliation	Number of Users
DR Technologies	1
Canadian Institute for Theoretical Astrophysics	1
Dragonwater LLC	1
CNUCE Institute, National Research Council	1
Centre René Gauducheau - Centre de Lutte Contre le Cancer	1
Centre for Astrophysics and Space Science	1
DRS Sensors and Targeting Systems	1
Central Scientific and Research Institute	1
Center for Naval Analyses	1
Carl Zeiss Optronics GmbH	1
Dynacon Enterprises Ltd	1
E.M.P. Consultants	1
Eötvös Loránd Geophysical Institute of Hungary	1
Experimental Raumfahrt-Interessen Gemeinschaft e.V.	1
Dr. D. Y. Patil College Of Engineering	1
Data Patterns	1
Cosmetecor	1
Council of the Central Laboratory of the Research Councils	1
Contraves Space	1
CRISA	1
Cudo Communication	1
Cycorp, Inc.	1
Consultant	1
Czech Technical University	1
Danish National Space Center	1
Consejería de Educación	1
Department of Energy	1
Conceptual Analytics, LLC	1
CMO Consulting Inc.	1
Davinci Project	1
Composite Optics Inc	1
Completel	1
Community Coordinated Modeling Center at NASA/GSFC	1
Commonwealth Scientific & Industrial Research Organisation - CSIRO	1
Defouw Engineering	1
Commercial Space Center for Engineering (now Spacecraft Technology Center)	1
Institut für Photogrammetrie und Fernerkundung	1
COM DEV Space	1
Columbia University	1
Eagle-Picher Technologies, LLC	1
Dassault Electronique	1
Finnish Meteorological Institute	1

Affiliation	Number of Users
Bauhaus-Universität Weimar	1
Bastion Technologies Inc.	1
Etnoteam	1
Bapedal East Java Institutional Strengthening	1
Avery Dennison	1
ExoTronics	1
Council for Scientific and Industrial Research	1
Autonomous Solutions, Inc.	1
Austrian academy of sciences	1
Faculty of Maritime Studies and Transport University of Ljubljana	1
EADS CASA	1
Federal Aviation Administration (FAA)	1
Erzia Technologies	1
Australian Space Research Institute	1
Flight Materials Group	1
Fluid Gravity Ltd.	1
Australian National University	1
Austin Sensors	1
Fraunhofer Institute for Solar Energy Systems	1
Fraunhofer-Institut für Naturwissenschaftlich-Technische Trendanalysen	1
ATOS Origin	1
Atomic Institute of the Austrian Universities	1
Frequency Electronics, Inc.	1
Faculty of Mechanical Engineering Belgrade University	1
Bristol University	1
Ecole Mohammadia d'Ingénieurs	1
California Polytechnic State University, San Luis Obispo	1
Calian	1
Caen Aerospace S.r.l.	1
Ecole Supérieure d'Electricité	1
Business & Engineering Systems Corp	1
EFACEC	1
Electro Optic Systems	1
Elfrad research and development	1
Budapest University Of Technology And Economics	1
Bees in Space Program	1
British Antarctic Survey	1
Estudios Aeroespaciales sl	1
Brightwell Instruments Ltd.	1
Bosch Telecom	1
Blue Apogee Science	1
Ente per le Nuove tecnologie, l'Energia e l'Ambiente	1

Affiliation	Number of Users
Bliley Technologies Inc.	1
Bilten Information Technologies and Electronics Research Institute	1
Equatorial Sistemas S.A.	1
Eril Research	1
Ernst Moritz Arndt Universität Greifswald	1
Ben Gurion University	1
Atomic Energy Organization of Iran	1
Brown University	1
Strategic Business Unit Space System	1
Spur Electron Limited	1
Tether Applications, Inc.	1
Telenor	1
Teledyne Brown Engineering	1
Tata Institute of Fundamental Research	1
Sungkyunkwan University	1
Sun Microsystems (NZ) Ltd.	1
Thales Electron Devices GmbH	1
Sula Systems Ltd.	1
Thales in the Netherlands	1
Stensat Group	1
Stellar Solutions Aerospace	1
State Scientific Research Enterprise	1
StarVision Technologies	1
Starsys	1
St.Petersburg State University	1
Tye Aerospace Services Ltd	1
Sumitomo Heavy Industries Ltd.	1
The Radio Amateur Satellite Corporation	1
Rogers	1
Turksat Satellite Communication and Cable TV Operation AS	1
Turkish Air Force	1
TU Darmstadt	1
True Blue Aviation Inc.	1
Travin	1
TransOrbital	1
Tethers Unlimited, Inc	1
Tiger Innovations	1
SpaceWx	1
The Open University	1
The MITRE Corporation	1
The Institution of Engineering and Technology	1
the Hong Kong Polytechnic University	1
The European Southern Observatory	1

Affiliation	Number of Users
The Design Knowledge Company	1
The Amateur Radio Propagation Lab	1
Tomsk State University	1
Schott Glass Technologies	1
SSG Precision Optronics	1
SGT Inc.	1
SFA Inc.	1
SES Astra	1
Serma Technologies	1
Septentrio	1
SEM-COM	1
SI International	1
Seconda Università degli studi di Napoli	1
Sinclair Interplanetary	1
School of Electrical Engineering Alfvén Laboratory	1
Saint Mary's University	1
Sagem SA	1
Ryerson University	1
RWE Space Solar Power	1
Russian Institute for Strategic Studies, Moscow	1
Mectron-Engenharia, Industria e Comercia Ltda.	1
Self employed	1
Space Engineering S.p.a., It	1
SpaceWorks Inc.	1
Space Tethers	1
Space Radiation Analysis Group	1
Space Physics Research Laboratory	1
Space Physics Laboratory	1
Space Frontier Operations	1
Space Exploration Technologies	1
Shanghai Institute of Optics and Fine Mechanics	1
Space Environment Center	1
U.S. Army	1
SP Systems	1
Solvay Institute for Physics and Chemistry	1
Solarion GmbH	1
Solar Influences Data Analysis	1
Société Anonyme Belge de Constructions Aéronautiques	1
Smithsonian Astrophysical Observatory	1
Sira Electro-Optics Ltd.	1
Space Environment Laboratory	1
University of Science and Technology of China	1
University of Missouri - Rolla	1

Affiliation	Number of Users
University Putra Malaysia	1
University of Wollongong	1
University of Texas at Dallas	1
University of Tennessee	1
University of Sydney	1
University of Strathclyde	1
Unknown China	1
University of Sevilla	1
Unknown France	1
University of Podlasie	1
University of Pavol Jozef Safarik	1
University of Pavia	1
University of Paisley	1
University of Notre Dame	1
University of Newcastle Australia	1
TVS Autolec Inds. Ltd.	1
University of Sheffield	1
Vinca Institute of Nuclear Sciences	1
Yonsei University	1
Yale University, New Haven	1
Xian Jiaotong University	1
Wyle Laboratories	1
Wright State University, Dayton, Ohio	1
Woodland Communications Corp	1
Weapon Systems & Space Technology	1
University RomaTre	1
Vitrociset EPB	1
University of Miskolc	1
Vienna University of Technology	1
Very Small Technologies, Inc.	1
Vertical Circuits, Inc.	1
Vermont Technical College	1
VEGA Group PLC	1
Vaughn Labs	1
US Navy	1
Volt Information Sciences	1
Universidad Nacional de la Plata	1
University of New Mexico	1
Universität Würzburg	1
Universität Karlsruhe	1
Università di Bologna	1
Università degli Studi dell'Aquila	1
Università Degli Studi del Piemonte Orientale	1

Affiliation	Number of Users
Universita degli Studi dell'Insubria	1
Universit� Paris Sud XI	1
Universidad Politecnica de Valencia	1
Universiteit Gent	1
Universidad Nacional de Cordoba	1
Universidad de Murcia	1
Universidad de Malaga	1
United States Naval Observatory	1
United States Military Academy	1
United States Air Force Academy	1
Union of Concerned Scientists	1
Universidade Federal do Rio de Janeiro	1
University of California Riverside	1
University of Minnesota	1
University of Milano	1
University of Maribor	1
University of Lapland	1
University of Kaiserslautern	1
University of Iowa	1
University of East Anglia	1
Universit� de Montr�al	1
University of California Santa Cruz	1
RMIT University	1
University of Buffalo	1
University of British Columbia	1
University of Bratislava	1
University of Barcelona	1
University of Athens	1
University of Adelaide, Australia	1
University at Albany	1
University of Central Lancashire	1
L-3 Communication	1
Kearfott Guidance & Navigation	1
Leeds University	1
Ledin Engineering	1
Lawrence Livermore National Laboratory	1
Lancaster Software Entwicklung	1
Lan Zhou University	1
Laboratoire d'Analyse et d'Architecture des Syst�mes	1
Leiden Institute Of Chemistry	1
L-3 Communications	1
Leoni Wiring	1
Kyushu Institute of Technology	1

Affiliation	Number of Users
Kudos Technology Limited	1
Kosmo Klub	1
Korea Aerospace Industries Ltd.	1
Konan University	1
Kinectrics Inc.	1
Metatech Corp	1
L3 Interstate Electronics Corporation	1
Mars Society Deutschland e.V.	1
RSRI Electronstandart	1
"Yuznoe" Design Office	1
McNeil Technology	1
McGill University Physics Department	1
Mayo Clinic College of Medicine	1
Maxwell	1
Max-Planck Institute of Astronomy	1
Leibniz Institute f�r Atmosph�renphysik e.V. an der Universit�t Rostock	1
Matra Marconi Space	1
Kare Technical Consulting	1
Mars Advanced Exploration and Development	1
Malin Space Science Systems	1
Lviv Centre of Institute of Space Research	1
Loral	1
Longhill Technologies Inc.	1
Logic Product Development	1
LightWorks Optics Inc	1
Max-Planck Institute for Solar System Research	1
Institute of Computational Modelling SB Ras	1
Kennedy Space Center, NASA	1
Instituto Superior de Engenharia de Lisboa	1
Instituto Nacional de Engenharia, Tecnologia e Inova��o, i.p.	1
Instituto Geofisico del Peru	1
Instituto di Scienze dell'Atmosfera e del Clima	1
Instituto de Astrofisica de Andalucia	1
Institute of Space Technology	1
Instituto Tecnologico de Aeronautica	1
Institute of Experimental Physics	1
Integrated Engineering Consulting LLC	1
Institute of Astrophysics, University of Innsbruck	1
Institute of Applied Geophysics	1
Institute for Unmanned Space Experiment Free Flyer	1
Institute for Plasma Research India	1
Institute for Physical Electronics Stuttgart	1

Affiliation	Number of Users
Institute for Aerospace Engineering	1
Institut Gramme	1
Institute of Geophysics of the University of Sao Paulo	1
ISRC	1
Justus-Liebig-Universität Giessen	1
Joint Institute for Nuclear Research	1
Jawaharlal Nehru University - JNU	1
Jagellonian University	1
Jacobs Engineering Group Inc.	1
Jackson State University	1
Istituto di Scienza e Tecnologie	1
Instituto Superior Técnico Universidade Técnica de Lisboa	1
Istituto di Astrofisica Spaziale e Fisica Cosmica - Bologna	1
Metorex International Oy	1
Isotron	1
Ishikawajima-harima Heavy Industries Co.,Ltd.	1
Iran Telecommunication Research Center	1
Ioffe Physico-Technical Institute	1
Intune Technologies, Inc.	1
International Space Systems Inc.	1
Integrity Testing Laboratory Inc.	1
Istituto di Astrofisica Spaziale e Fisica Cosmica	1
Oviri Engineering Systems International	1
Norwegian Space Centre	1
Planetary and Space Sciences Research Institute	1
Petróleo de Venezuela S.A.	1
Peterson Air Force Base	1
Petersburg Nuclear Physics Institute	1
Paragon Space Development Corporation	1
Paradigm Services	1
Plexus	1
Oxford Instruments	1
Prairie View A&M University	1
Oulu University	1
Osaka University	1
Omnisys Instruments	1
Oklahoma State University	1
Ohio Aerospace Institute	1
Oak Ridge National Laboratory	1
Meisei Electric Co. Ltd.	1
Pacific Oceanological Institute	1
Raman Research Institute	1
Riverside Research Institute	1

Affiliation	Number of Users
Risoe National Laboratory	1
Ridgetop Group Inc.	1
Rhodes University	1
RHe Microsystems	1
Research Support Instruments, Inc.	1
Research Institute for Solid State Physics and Optics	1
Planetary Plasma and Atmospheric Research Center	1
Redshift Design and Engineering	1
Northwestern University	1
Raja Ramanna Centre for Advanced Technology	1
Rafael Armament Development Authority Ltd.	1
Radio Research Laboratory	1
QSS Group, Inc.	1
Qioptiq Space Technology	1
ProLogic, Inc	1
Price Induction	1
Redu	1
Missile Defense Agency	1
NPP VNII Electro-Mechanics, Moscow	1
Nanjing University of Aeronautics and Astronautics	1
Nanjing University	1
Nagoya Guidance & Propulsion Systems Works, Mitsubishi Heavy Industries, LTD	1
Moscow State University	1
Moscow Institute of Physics and Technology	1
Moog, Inc.	1
National Authority for Remote Sensing and Space Sciences	1
Mitsubishi Aerospace Electronics	1
National Cheng Kung University	1
Miltec Corporation	1
Millennium Engineering and Integration Company	1
Middle East Technical University, Ankara	1
Microwave Laboratory, UCL, Louvain-la-Neuve	1
Micromega Dynamics	1
Microcosm	1
Micro- and Nanotechnology Research Center	1
Montana State University	1
National Tsing Hua University	1
North Carolina State University	1
Nobeyama Radio Observatory	1
Nippon Hoso Kyokai (Japan Broadcasting Corporation)	1
New Skies Satellites	1
New Mexico State University	1

Affiliation	Number of Users
New Mexico Institute of Mining and Technology	1
Netherlands Organisation for Applied Scientific Research	1
Nankai University	1
Negev Nuclear Research Center	1
Institut für Leichtbau	1
National Technical University of Athens	1
National Space Agency of Malaysia	1
National Research Institute of Astronomy and Geophysics	1
National Physical Laboratory	1
National Oceanic & Atmospheric Administration	1
National Institute of Radiation Hygiene	1
National Institute of Information and Communications Technology	1
NEPTEC Design Group Ltd., Canada	1

Appendix2: SPENVIS Usage Data

The following data is generated from SPENVIS logs for the period 18 June 2007 to 17 June 2008. In these tables, the data for June 2007 and June 2008 are amalgamated to provide a full month's data that can be compared with all other months.

Table 8. Monthly User Activity by Organisation Affiliation

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Grand Total	140	247	281	376	296	226	331	315	514	392	288	172	3578
Swedish Institute of Space Physics		45		63	2				212	59	10	3	394
European Space Research and Technology Centre	8	7	5	33	24	7	24	28	27	26	13	8	210
University of Michigan		1	44	33	39	12	20	6	1	6			162
Belgian Institute for Space Aeronomy	3	4	12	8	5	8	11	13	14	18	12	4	112
The Aerospace Corporation	1	4	1	7	16	5	12	6	4	5	12	5	78
National Research Institute of Astronomy and Geophysics	6	3	1	9	15	12	17	2		2	9		76
Astrium GmbH	4	3	7	9	4	3	1	10	4	15	9	4	73
ITT Aerospace/Communication		3		8	3	3	3	9	8	12	10	10	69
Space Environment Prediction Center		6	17	5	9	13	7	1	3	1	7		69
Goddard Space Flight Center	3	7	7	7	3	7	2	9		12	3	4	64
Defence Evaluation and Research Agency		1	1	7	13	5	13	4	1	10	1	5	61
University of Surrey		4	5	5	2		5	4	5	12	12	5	59
United States Naval Academy			10	6		5	7	2	13	5	3	5	56
Jet Propulsion Laboratory	2	2	1	10	6	5	3	2	3	2	9	6	51
Officine Galileo	7	6	8	5	5		8	5	2	4	1		51
Yuznoe Design Office				1	3	1	10	6	2	14	9	1	47
Ball Aerospace & Technology Corp.	1	1	3	3	2	1	14	4	4	10	1	2	46
MacDonald Dettwiler and Associates			3	7	6	6	8	5	2	3	1	2	43
Boeing, Inc.	1	4	1	6	2		6	3	1	9	4	4	41
Raytheon	3	3	5	10	3	1	2	1	5	2	3	2	40
QinetiQ	5	8	1	3	3	1	1	3		3	2	7	37
Spectrolab		7	3	2	4	4	3	7	1	2	3	1	37

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Center for Advanced Research in Space Optics			1			7	10	4		4	7		33
Brunel University	4	4	2	2	1	1	4	3	5	4	1	1	32
Lockheed Martin	2		1	1	5	9	5	2	3	3	1		32
Technical University Denmark			23	3		1	2	3					32
Laboratory for Atmospheric and Space Physics	2	4	1	1		6	9			3	2	2	30
Indian Space Research Organisation	1	3	8		5	2	3	2				3	27
NASA	5	1	1	2	5	2	5	4	1		1		27
Harbin Institute of Technology	5	11	2	3		1			1		1	1	25
MicroSat Systems Inc.			6	3	2	1	2	1		4	5		24
Saab Ericsson Space			4		4			1	4	1	10		24
Astrium SAS France	1	5	7	2		1	2		2	2		1	23
Matra Marconi Space	1	1		1	5		1	11	3				23
SFA Inc.	2	3	1	3		3		2	3		3	3	23
Sodern		1	5	6		1	2	5		1		2	23
Max-Planck-Institut f. Extraterr. Physik				3	7		1	1	4	4	1		21
Orbital Sciences Corp.			2	9	1				1		6	2	21
HAS KFKI Atomic Energy Research Institute	3	3		3	1	2		2	3	2	1		20
Laben					2	3	6	1	5		3		20
Technischen Universität Berlin	7	12	1										20
The Johns Hopkins University	5		1	2	2			2	1	2	3	2	20
Astrium UK	2	2			3	1	6	2		2		1	19
INVAP	2			1	2	1	1		7	3	2		19
SEAKR Engineering, Inc		6		1		2	1	4	3		2		19
Stapor Research, Inc.	4	4	1	1	1	4	1	1	2				19
Unknown Germany	2	2		1		3	7				2	2	19
EMS Technologies Canada Ltd				4		1	1	1	6	2	1	2	18
Mitsubishi Electric Coporation		1		2	1	1		3	6		1	3	18
Istituto Nazionale di Fisica Nucleare	3		1							1	3	9	17
Space Research Institute, Auburn, USA	1	3		1				5	2	1	3	1	17
Université de Montpellier II							7	4	2	2	1	1	17

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Institute of High Energy Physics	1	2	1		1		2	1		3	5		16
Space Micro Inc.		4	3	1		1	1	1		3	1	1	16
Terma Elektronik AS	1	3	1	1		4	1	2	1		2		16
University of California				2	1	2	1	4	1	2	1	2	16
Delft University of Technology		1					1	1		8	4		15
Lan Zhou University					4	5	1		3	1		1	15
Surrey Satellite Technology Ltd					1	4	3	2	1	2	2	2	15
Fudan University			2		4	3			2	1		2	14
Instituto Nacional de Pesquisas Espaciais						1		8	3			2	14
Massachusetts Institute of Technology	2	1			1			2	1	4	2	1	14
OHB System GmbH		1	3		2	2			1	1	4		14
Ridgetop Group Inc.								2	6	2	3	1	14
Thomson-Nielsen Elec.				3	5	3			3				14
Bristol Aerospace Ltd.							4	3	2		1	3	13
Kayser-Threde GmbH			1				1		6			5	13
Old Dominion University	2	1	1	2	3	2	1				1		13
Southwest Research Institute		3	2	4	2					2			13
Swales Aerospace	1	2		3	4		2				1		13
Centro Tecnico Aeroespacial									2	6	3	1	12
Institute of Space and Astronautical Science				1				2		9			12
MDRobotics									8	3	1		12
BAE Systems Controls		4	1		3	3							11
Center for Space Radiations		1					2		2	1	4	1	11
Comision Nacional de Energia Atomica	3							3				5	11
E.M.P. Consultants					1		3	7					11
Fokker Space	1				3	4	1	1			1		11
IHI Aerospace Co., Ltd.					1		7	3					11
Institut de Physique Nucléaire					1	1	5	2	2				11
SGT Inc.			2	4	1		3	1					11
Space Physics Laboratory				1	3	1	3		3				11

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Democritus University of Thrace	1		1				1	4	3				10
General Dynamics C4 Systems			2		1			3	2		2		10
Mullard Space Science Laboratory		2	2	2		2	1	1					10
Space Research Institute			2	1				1	5	1			10
The Charles Stark Draper Laboratory, Inc.	3	2	1	2	1		1						10
Universitat Politècnica de Catalunya								3	3	3	1		10
University of Alcalá								5	5				10
Boston University	3					4		1	1				9
Cairo University								1	2	3	2	1	9
Carlo Gavazzi Space SpA						1		2		2	4		9
Commissariat à l'Energie Atomique			2	3	1	2						1	9
Indonesia National Institute of Aeronautical and Space (LAPAN Bandung)	2		1					1	1	3		1	9
Northrop Grumman	1		1			1					5	1	9
Physical Sciences Inc.	1		1					1		3	2	1	9
Solar Terrestrial Influences Laboratory										6	3		9
Alcatel Space Industries	1		2			1	1	1	1	1			8
Alenia Aerospazio				4				2			2		8
Deutsche Zentrum für Luft- und Raumfahrt					1	1			3			3	8
DSS Dornier Satellitensysteme			5					2	1				8
Mitsubishi Precision Co., Ltd				1				2	1	4			8
Routes AstroEngineering		1	2						5				8
Space Sciences Laboratory, University of California		4	2	1						1			8
Unknown							6	1	1				8
Able Engineering Company				4					1		2		7
Comisión Nacional de Actividades Espaciales										1	5	1	7
DSO National Laboratories				1			2	4					7
Dutch Space bv			2			2	1			1		1	7

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Instituto Nacional de T�cnica Aeroespacial			2		1		2				2		7
Jacobs Engineering Group Inc.		2	3	1			1						7
Loral			1			1	1	3	1				7
Swedish Space Corporation				3	1	2					1		7
University of California Santa Cruz					1		1	2	1	1	1		7
University of Leicester	1	1		2	3								7
University of New Hampshire			2	4		1							7
University of Southern California					1		1	2	1	1	1		7
Chalmers University of Technology						1		1	3	1			6
European Space Operations Centre (ESOC)									1	5			6
Ishikawajima-harima Heavy Industries Co.,Ltd.				1				3	2				6
National Authority for Remote Sensing and Space Sciences									2	2	1	1	6
Naval Research Laboratory	1	2	1					2					6
Politecnico di Torino	1	1	3	1									6
Sira Electro-Optics Ltd.								2	4				6
Space Science & Engineering Lab Montana State University					1					2	3		6
Stockholm University	2	4											6
York University							1		5				6
(Blank)				4	1								5
Aboa Space Research Oy				1	2			1			1		5
Air Force Research Laboratory	3				2								5
Beijing Institute of Spacecraft Environment Engineering						2		1			2		5
Centre for Astrophysics and Space Science		3		2									5
Korea Aerospace Research Institute		1				2	1				1		5
New Skies Satellites									4			1	5
Peking University	1				1				1	2			5

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Science Applications International Corporation			3	2									5
Telesat Canada									1	3	1		5
Tether Applications, Inc.		2								3			5
Tokyo Institute of Technology							1	2			2		5
Turksat Satellite Communication and Cable TV Operation AS								1	3			1	5
Università Degli Studi del Piemonte Orientale					2	1		2					5
University of Padova				4								1	5
University of Sharif								1			1	3	5
Unknown United States									2		3		5
Chinese Academy Of Sciences									2		1	1	4
Christian-Albrechts-Universität zu Kiel									1	3			4
Fachhochschule Aachen			1						2			1	4
Glenn Research Center							1	1	2	1			4
GMV, S.A.						3		1					4
Katholieke Universiteit Leuven										3	1		4
Lulea University of Technology		1		1	1				1				4
Missile Defense Agency			4										4
Princeton University								1			1	2	4
Skobeltsyn Institute of Nuclear Physics								4					4
StarVision Technologies		2			1	1							4
Université de Liège	1	1	1	1									4
Arizona State University						1			2				3
Bigelow Aerospace				2	1								3
Canadian Space Agency								1		1	1		3
CISAS - Center of Studies and Activities for Space - G.Colombo			1				2						3
Danish Space Research Institute			2				1						3
Delta-Utec Space Research & Consultancy					1			1			1		3

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
General Research Institute for Non-ferrous Metals					2					1			3
Physical Research Laboratory						3							3
Soreq Nuclear Research Center				1						2			3
Spectrum Astro Inc.		1					1		1				3
Tsinghua University	1		2				1						3
Valencia University							1	2					3
Broad Reach Engineering												2	2
Centre d'Etude Spatiale des Rayonnements										1		1	2
EDO Corp. Electronics Systems Group		1								1			2
EFACEC								1	1				2
ELV SpA										2			2
Emcore		1									1		2
Lavochkin Science & Production Association					2								2
Marshall Space Flight Center	1		1										2
Physikalisches Institut, Unibern										2			2
Purdue University						2							2
QSS Group, Inc.							1		1				2
Satreco							1				1		2
Société Européenne des Satellites								2					2
Space Research Organization Netherlands									2				2
Tesat-Spacecom GmbH & Co.KG	1									1			2
The MITRE Corporation							2						2
Universiti Sains Malaysia				1	1								2
University of Alberta											1	1	2
University of Newcastle	1		1										2
University of Rome La Sapienza			1				1						2
University of Science and Technology of China		1			1								2

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
University of Tokyo	1								1				2
Vanderbilt University School of Engineering				1	1								2
Washington University							2						2
Aeroelettronica S.A.			1										1
Alta Space S.P.A.					1								1
Atomic Institute of the Austrian Universities						1							1
Avery Dennison		1											1
Bilten Information Technologies and Electronics Research Institute									1				1
Blue Apogee Science												1	1
Center for Space Science and Applied Research					1								1
Centre Spatial de Liege					1								1
Cornell University										1			1
Cranfield University					1								1
Deimos Engenharia									1				1
DPL Science Inc.												1	1
DutchSpace, Leiden										1			1
Facultad de Ingenieria Universidad de Buenos Aires						1							1
Hitachi Ltd.										1			1
Honeybee Robotics			1										1
Institut National de Physique Nucleaire et de Physique des Particules									1				1
Instituto Geofisico del Peru			1										1
Istituto di Scienza e Tecnologie				1									1
Istituto Nazionale di Astrofisica										1			1
Japan Aerospace Exploration Agency											1		1
Jena-Optronik GmbH	1												1
Kearfott Guidance & Navigation					1								1

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Korea Advanced Institute of Science and Technology - KAIST								1					1
Langley Research Center						1							1
Lawrence Berkeley National Laboratory		1											1
Lockheed Martin Solar and Astrophysics Laboratory		1											1
Max-Planck Institute of Astronomy									1				1
Microwave Laboratory, UCL, Louvain-la-Neuve												1	1
Mier Comunicaciones, S.A.										1			1
Mission Research Corporation										1			1
Nanjing University of Aeronautics and Astronautics		1											1
National Astronomical Observatory									1				1
National Institute for Physics and Nuclear Engineering									1				1
NEC Corporation		1											1
NEC/Toshiba Space Systems, Ltd.						1							1
Office National d'Etudes et de Recherches Aérospatiales					1								1
Orbital Engenharia Ltda									1				1
Petersburg Nuclear Physics Institute								1					1
Riverside Research Institute			1										1
Royal Institute of Technology	1												1
Rutherford Appleton Laboratory												1	1
RWE Space Solar Power								1					1
SpaceWx												1	1
St.Petersburg State University									1				1
Stanford University	1												1
Systems Engineering and Assessment Ltd										1			1
Technical University of Munich	1												1

Affiliation Name	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Technion, Israel Institute of Technology							1						1
Technische Universität Dresden								1					1
Telenor			1										1
Trad								1					1
Universidad Politécnica de Madrid			1										1
University of Rome Tor Vergata					1								1
University of Toronto	1												1
University of Turku												1	1
University of Zaragoza	1												1
University Roma Tre									1				1
Verhaert d&d		1											1
Xian Jiaotong University					1								1

Table 9. Monthly User Activity by User Name

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Grand Total	140	247	281	376	296	226	331	315	514	392	288	172	3578
hugh	6		4	10	8	2	13	11	12	11	4	3	84
samwel	6	3	1	9	15	12	17	2		2	9		76
polsky				8	3	3	3	9	8	12	7	10	63
taylorbe		4	5	5	2		5	4	5	12	12	5	59
pisacane			10	6		5	7	2	13	5	3	5	56
oleg				1	3	1	10	6	2	14	9	1	47
chend		6	11	2	7	8	6				6		46
batchelor	3	5	6	4	1	2	2	8		9	2	3	45
sorensen	1	4		5	5	2	4	4	5	7	6	2	45
rodgers		1		4	7	4	12	2	1	7	1	3	42
erwin			8	16	7	4	3	1		1			40
laila	4	4		2		6	14				4	4	38
moss			2	7	6	6	5	5	2	2	1	2	38
berrighi	6	5	6	4	3		5	1	2	1			33
dewitte	1	2	2	2	1	1	5	7	5	5			31
peterson		6	3	2	1	4	3	6		2	2	1	30
janw	2	1	7	3	4	3	2		2	3		2	29
menicucci		1		7	5	1	5	7	3				29
muller	2	1		1	3	3		5	2	3	7	2	29
carso_stud	13					7	10	4		4	1		26
lixi	5	11	2	3		1			1		1	1	25
girard			6	3	2	1	2	1		4	5		24
fusero	1	1		1	5		1	11	3				23
herve		1	5	6		1	2	5		1		2	23
jostell			4		4			1	3	1	10		23
jwhan			6	3	2	5	1	1	3	1	1		23
messenger	2	3	1	3		3		2	3		3	3	23
nickles		1	2	1			3	3	2	8	1	2	23
hands	3	4		1	1		1	1		2	2	6	21
arloth	7	12	1										20
beaumont	1	3	7	2		1	2		2	1		1	20

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
fennell	1	4		4	2	1	4	1		2		1	20
hirn	3	3		3	1	2		2	3	2	1		20
daniel						3	4	3	4	3	1	1	19
orellano	2			1	2	1	1		7	3	2		19
ferrando	1	1	2	1	2		3	4	16	3	1		18
irf_stud59										2			18
rufenacht				4		1	1	1	6	2	1	2	18
santin			1	5				4	4	3		1	18
adamson						8	7	1		1			17
garcia						2			2	1	9	3	17
irf_stud05		2		13					1		1		17
irf_stud40		1							15	1			17
mcdonald	3	3	1	1	1	4	1	1	2				17
rodiek	1	3		1				5	2	1	3	1	17
williams	2			8	3	1	1	1	1				17
alpat	2		1							1	3	9	16
buitrago				2	1	2	1	4	1	2	1	2	16
irf_stud04		2		2					10	1	1		16
layton		4	3	1		1	1	1		3	1	1	16
rothd	4			2	1			2	1	2	2	2	16
cherng	1			4	1		1	2	2	1	3		15
irf_stud50				15									15
juny					4	5	1		3	1		1	15
keil			6	1				2		6			15
predehlp				3	6		1	1	2	1	1		15
smith					3		3		3	3	3		15
wattss	4	4	2	2			2	1					15
bai			2		4	3			2	1		2	14
carey	1	2		3			1	3	1	3			14
flei			1	3	2	1	1	2		2		2	14
graves								2	6	2	3	1	14
kimber					1	4	3	1	1		2	2	14
rutt		5		1		2	1	1	2		2		14
thomson				3	5	3			3				14

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
deangelisn	2				3	1	4	1		1		1	13
harrisr							4	3	2		1	3	13
irf_stud11		2		2					9				13
kang				2	1		1		1		6	2	13
michel									1	4	7	1	13
nealy	2	1	1	2	3	2	1				1		13
pierrard		1	1	3		1		1	2	2	2		13
capacci					2	2	6	1	1				12
federico									2	6	3	1	12
irf_stud02		2							8		1	1	12
irf_stud10				6					2	4			12
irf_stud12		2		4					6				12
redick			3	2	4		3						12
bhagyaraj		1	1		3	2	1	1				2	11
datlowe				1	3	1	3		3				11
degraaf	1				3	4	1	1			1		11
devaud						1	8	1	1				11
gang	1	2	1				1	1		3	4		11
gladstone			2	3	2					2			11
inagaki					1		7	3					11
irf_stud30		4							3	4			11
jordant					1		3						11
kinoda				1	1			3	3			3	11
lawrencer		4	1		3	3							11
manor			3	4	4								11
mathias					1	1	5	2	2				11
rhee	2			2			5	2					11
stauffer			2	4	1		3	1					11
bhat		1	4		1		2	1				1	10
blake				2	3		1	2	2				10
cabrera		1					1		2	1	4	1	10
crosby		2	2	2		2	1	1					10
dreyer				8	1				1				10
eamonn				2	1		2	1	3		1		10

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
gow						1	1		4	3		1	10
irf_stud17		2		1					7				10
irf_stud28		1							5	4			10
irf_stud29		2							6	2			10
irf_stud42									8	1	1		10
irf_stud46									10				10
irf_stud47									7	3			10
irf_stud56									9	1			10
lambert							4	3	2		1		10
layher			5	1	3			1					10
prieto								5	5				10
vieira								7	3				10
ahmadn	2		1					1	1	3		1	9
bravo								3	3	3			9
chesser									7	2			9
dachev										6	3		9
dawson	1			1	4		2			3	1		9
elawawy			2	4	3			1	2	3	2	1	9
holmes													9
imran										5	4		9
irf_stud01				7	1						1		9
irf_stud52									6	3			9
kli										9			9
knightf								2	1	4	2		9
lopeze			2		1			2	2		2		9
mazur			1		5	2	1						9
moldenhauer			1				1					1	9
odonnell				1			3		2	2	1		9
steffensen		3				2		2	1		1		9
bird	1		1		2		3		1				8
cappelluti						1			4		3		8
hill			5					2	1				8
hollander			4	2	2								8
irf_stud20		1							4	3			8

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
irf_stud23		2				1			2	4			8
lupi				1			3	2		2	3		8
mikkelson			1							2		2	8
odenwald	3				4								8
ratliff	1			3	3	1							8
sarris			1					4	3				8
smatlak			1					1		3	2	1	8
bartholet	1		1	3				2					7
bazley		1	1						5				7
bernard							3	1		2		1	7
burnsd							3	1	1	2			7
clymer	1				1		2	1	1	1			7
cortez										1	5	1	7
donajkowski			2	1	1		2	1					7
eskenazi				4					1		2		7
granholm				3	1	2					1		7
hoxie			1			1	2			3			7
hughlock									1	1	4	1	7
huston		3					2			2			7
irf_stud03		1		5	1								7
irf_stud37									5	2			7
irf_stud41									5	2			7
irf_stud49									4	3			7
irf_stud60				1					6				7
kanai		1		1		1			3		1		7
lake		1	1		2	2			1				7
minow					1	2		2	1		1		7
mok				1			2	4					7
moran	1	2	1	2	1								7
mouikis			2	4		1							7
oaida			2		2		1			2			7
prario	2											5	7
prebola		2	3	1			1						7
vanderheijden			2			2	1			1		1	7

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
willits	1		1				1			2	2		7
wong			1			1	1	3	1				7
axelsson	2	4											6
bjarhoe						1	2	3					6
busen			2		4								6
cao		1			2			1	1		1		6
delory		4	2										6
destefanis				4				2					6
dimarco									1	5			6
elfiky									2	2	1	1	6
ghorakavi			3	1	2								6
gustafssonk						1		1	3		1		6
irf_stud07		1		1					3		1		6
irf_stud08		2		1					2		1		6
irf_stud22		1							5				6
irf_stud26		2							2	1	1		6
irf_stud32									6				6
irf_stud54							2	1	1	5			6
kent		2								1			6
larsenb					1					2	3		6
lobb								2	4				6
lum						5		1					6
maddock					1	4	1						6
mayerd					1		5						6
meidinger					1				2	3			6
nguyen		2	3									1	6
saaki				1					1	4			6
smithdavi								6					6
solin	1				4	1							6
wrenn		1		2	1	1						1	6
yonemaru				1				3	2				6
alain				2	3								5
bannister				2	3								5
carso_stud	12										5		5

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
cwarren										1	2	2	5
davisv			3	2									5
dichter	3				2								5
drolshagen					2			1		1		1	5
ekinci								1	3			1	5
esteva			2		1		2						5
ford	2	3											5
gasparotto				4								1	5
gatto			2	1	2								5
ghasemi								1			1	3	5
irf_stud06		2							1		2		5
irf_stud27									5				5
irf_stud36				1					1	3			5
irf_stud45									3	2			5
irf_stud51									5				5
jcarroll		2								3			5
knag			2	1	2								5
koebel										1	4		5
millers			1								4		5
monreal		1						3	1				5
pitchfordd									4			1	5
reddell				2	2			1					5
thomasson		3		2									5
tkachenko			2	1					2				5
tracino					2	1		2					5
trofimov			1								2	2	5
valtonen				1	2			1			1		5
wenxi		2			1		1				1		5
wichman				4	1								5
yg						2		1			2		5
alurrealde	1							3					4
arefiev									3	1			4
asilva						1		1				2	4
azzolini					1	3							4

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
benck										3	1		4
boles			4										4
brosse	1		2				1						4
choy		1				2					1		4
cordier			1	3									4
davidsen	1		1			2							4
dfustud03			4										4
granata					2		1	1					4
graziano						3		1					4
gruesbeck			4										4
henderson		2			1	1							4
horner											4		4
howard				1	1	1				1			4
irf_stud14		2											4
irf_stud34									2	2			4
irf_stud39		1							1			2	4
irf_stud48				3					1				4
irf_stud53									1	3			4
jun										1		3	4
likar								1			1	2	4
maslowski							1		2	1			4
meng					1				1	2			4
narayanasamy							4						4
pellowskif												4	4
petrov								4					4
rega		1	3										4
rossi	1	1	1	1									4
ryden					4								4
scholz			1						2			1	4
short				1							2	1	4
sullivan						4							4
truscott					1			2		1			4
voss	3							1					4
xapsos			1	2								1	4

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
banerjee				2	1	3							3
beller							1						3
cannata							1		2				3
coppeta	2						1						3
dtustud18			3										3
edgett		1					1		1				3
ejemalm				1	1				1				3
evans									1	2			3
forgione	1	1	1										3
friedman							1	1	1				3
furano				1		2							3
gaddy					1	1		1		1			3
gherta					1			1			1		3
giacomuzzo			1				2						3
gloutnay								1		1	1		3
goldstein						1					1	1	3
hansen			2				1						3
hiemstra									1	1	1		3
hthomas											3		3
irf_stud09		2							1				3
irf_stud13		2							1				3
irf_stud18		1		1					1				3
irf_stud43									1	2			3
kravitz				2								1	3
laursen				1			1				1		3
loverro		1	1									1	3
maag		2								1			3
mohr						1			2				3
mueller-mellin										3			3
murat				1						2			3
navarathinam			1						3				3
okumura					1	1							3
petrinec						3							3
pickel											3		3

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
renaudie												3	3
ringelberg		3											3
russo							1	2					3
sankaran	1		2										3
suzuki				1				2					3
underwood										3			3
vanbreukelen										3			3
warren									3				3
wei									2		1		3
westley		1		2									3
wijnans		1					1	1					3
yangz					2					1			3
yim			1		2								3
yoshihiro							1	2					3
zentgraf				3									3
ziegler										3			3
zugaj								1	1	1			3
aguilar								1	1				2
andersont												2	2
apperley							1			1			2
balduccini										2			2
bas							2						2
bautz		1			1								2
berry					1			1					2
binns							2						2
boeder										1		1	2
campbell								2					2
carpenter	1	1											2
chester	1		1										2
claret						1						1	2
denherder									2				2
desorgher										2			2
dtustud02			2										2
dtustud10			2										2

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
dtustud11			1	1									2
dtustud12			2										2
dtustud16			2										2
finetto	1			1									2
freker			2										2
fulco								2					2
garciac			1		1								2
garnica		1									1		2
gelinas											2		2
goeke	2												2
haag							1	1					2
haggerty			1								1		2
helge			1								1		2
helling				2									2
hilde										1	1		2
irf_stud15		1							1				2
irf_stud16		1							1				2
irf_stud21		1							1				2
irf_stud24		1							1				2
irf_stud38									2				2
irf_stud58									2				2
itoh								2					2
kataoka											2		2
ketola									1		1		2
kildluff		1	1										2
kokubun	1								1				2
kuzenova					2								2
lindberg		2											2
loved	1		1										2
luh		1											2
malla				1	1								2
mancini											2		2
manningr						2							2
marshall									2				2

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
meshel											1	1	2
michaelis									2				2
miller										2			2
mullerr							1		1				2
ozeke											1	1	2
pagliarulo		1								1			2
pellish				1	1								2
puthanveettil			1		1								2
rathke			1							1			2
roeder				1	1								2
rowland		1									1		2
seon							1				1		2
stegen			1					1					2
stewartw							2						2
ucker						2							2
vicente											2		2
vince										1	1		2
withnell		2											2
woodward										2			2
yi	1	1											2
zhi			2										2
akins		1											1
alcayde										1			1
andrews					1								1
arend			1										1
atwell							1						1
Badavi						1							1
berglund	1												1
bergmann	1												1
bertrandd							1						1
Beutier								1					1
Boerner		1											1
Bonnell										1			1
burmeister									1				1

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
carso_stud01			1										1
carso_stud11											1		1
Casolino	1												1
Chenx												1	1
Chois				1									1
Clucas												1	1
Coluzzi							1						1
Conti									1				1
cunderwood								1					1
Difelice					1								1
Digel	1												1
dobschinski	1												1
domingo			1										1
Doud		1											1
Dtustud05			1										1
Dtustud06			1										1
Dtustud07			1										1
dtustud13			1										1
dtustud14			1										1
dtustud15				1									1
dtustud17				1									1
dtustud19			1										1
dtustud20			1										1
durrant										1			1
duzellier					1								1
dyer			1										1
elghafari				1									1
ernstberger	1												1
ersmark	1												1
frey		1											1
galica	1					1							1
galloj													1
garciae										1			1
genot												1	1

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
geurts					1								1
giffin			1										1
greenland					1								1
griffind												1	1
grigorov		1											1
gutierrez											1		1
hajek						1							1
hara									1				1
heidergott								1					1
herschovitz							1						1
hoeschel								1					1
huangc					1								1
ikeda										1			1
imamura											1		1
irf_stud19									1				1
irf_stud25		1											1
irf_stud31										1			1
irf_stud33									1				1
irf_stud35									1				1
irf_stud55									1				1
irf_stud57									1				1
jl								1					1
jmarshall				1									1
johannessen			1										1
jonesd	1												1
jorg-micha		1											1
junginger									1				1
kayal						1							1
kennedyt			1										1
kerslake		1											1
kims								1					1
ksmith			1										1
laroche								1					1
lauenstein		1											1

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
leeddo							1						1
legramandi											1		1
lehti												1	1
lepostollec									1				1
liangs										1			1
lin												1	1
linn							1						1
lius								1					1
manns					1								1
marin	1												1
marius									1				1
matthiae					1								1
mattsson									1				1
meihua		1											1
mengx	1												1
mertens												1	1
millersc	1												1
missirian					1								1
mottola									1				1
nakano		1											1
natalucci										1			1
novelli			1										1
odell			1										1
ornn	1												1
overbosch										1			1
ozkaptan									1				1
pardini				1									1
penin									1				1
petrukovich								1					1
pillukat	1												1
poivey										1			1
prigozhin												1	1
reddy		1											1
reinecke										1			1

Username	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
revans		1											1
richards			1										1
roe		1											1
rozenbaum		1											1
ruelle					1								1
ruizm			1										1
sarrist							1						1
scheithauer									1				1
schoendorf										1			1
seeliger										1			1
sharmas					1								1
tapley				1									1
taylor										1			1
tobiska												1	1
toshihiko						1							1
trouve						1							1
tverskoy								1					1
vandenbraembussche		1											1
vaz									1				1
vernova									1				1
villam		1											1
walendzinski					1								1
watsonc										1			1
wend					1								1
wnuk			1										1
wunderer				1									1
xuesheng	1												1
zekios	1												1
zong									1				1

Table 10. Monthly SPENVIS Functionality Activity

Operation	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Grand Total	462	435	391	379	501	438	402	535	450	643	522	444	248	5850
sapre	28	29	27	25	30	29	30	29	26	31	30	31	14	359
trep	26	29	26	26	30	29	31	28	26	31	29	31	15	357
sep	24	27	23	23	30	27	27	28	25	30	28	30	14	336
sd2	25	24	20	22	29	25	22	24	24	26	26	29	14	310
dose	24	21	19	22	27	24	17	24	22	26	25	21	9	281
run_mulassis.csh	26	27	20	19	26	21	22	25	19	24	21	15	10	275
letorb	21	24	18	21	28	19	20	21	17	28	21	21	13	272
eqflux	21	22	13	18	27	17	19	21	21	27	20	22	13	261
aniso	16	21	14	12	22	22	14	17	18	24	17	19	7	223
grid	18	13	20	14	16	13	11	14	18	18	15	16	8	194
@mulassis_batch	18	18	14	13	17	14	18	16	9	19	10	8	9	183
mulassis	26	27	20	21	27	24	16							161
niel	12	8	5	11	21	10	12	7	14	16	15	21	9	161
dictat	12	12	6	12	8	15	7	13	8	14	19	13	13	152
upseto	10	15	10	9	13	11	10	12	13	21	11	12	5	152
orbplot	16	11	7	10	14	11	8	14	7	22	16	7	7	150
blxtra	19	9	11	8	15	10	3	14	8	17	14	10	6	144
material	16	18	8	6	11	16	13	19	12	9	10		2	140
mulassis_macro							10	29	20	24	23	20	10	136
sd	14	8	13	4	13	10	8	12	9	19	7	9	8	134
treppos	15	8	8	8	13	7	4	13	12	11	10	10	5	124
atomox	5	6	9	8	10	12	6	16	7	16	15	9	4	123
plot_xy	7	5	7	5	12	14	4	9	7	17	13	8	5	113
equipot	6	9	10	13	7	6	2	8	18	11	9	3	2	104
leopold	7	5	8	7	9	4	4	5	5	17	9	6	3	89
@mission_sel_batch	5	6	9	8	6	5	6	7	6	12	8	7	3	88
grun	3	3	6	3	9	11	5	7	6	14	8	4	2	81
nasa90	2	2	3	3	10	10	7	8	7	10	8	7	3	80
sector	16		1	1	2		2	17	11	8	10	6	3	77
trepbl	3	7	5	5	3	2	2	4	5	9	6	5	4	60
illum	3	5	6	4	3	6	3	3	3	12	4	1	5	58

Operation	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
blpos	6	1	5	3	5	5	3	2	4	6	3	6	1	50
ssat_macro							2	11	7	10	6	7	3	46
atmopos	2	2	4	3	2	3	1		3	5	9	4	1	39
gemat_macro							7	9	3	7	9	1	3	39
@query_batch	1	1	4	4	2		2	3	4	7	4	4	2	38
run_ssats.sh							2	10	6	8	3	7	2	38
shell	1	1	3	1	1	2	1	2	4	6	6	6	1	35
solarc	4	4	5	2		2	1	3	4	6	1	1	1	34
run_gemat.csh							7	9	2	4	8		2	32
coortrans	2	5	2		2	2	2	1	1	2	6		1	26
ssat							2	8	3	6	2	3	2	26
gemat							7	7	2	3	4		1	24
@dbplot_batch		1	1	1			1	1	2	5	2	2	1	17
@mission_sel1_batch		1	1	4			1	3	1	3	2		1	17
sflux	2				1			2	1	1		2	1	10
query										1				1

Appendix 3: Model and Data Providers

The lists of Model and Data Providers in this Appendix have been extracted from the Credits page of the SPENVIS web site.

MODEL PROVIDERS

J.H. Adams (CREME),
B.E. Anspaugh (EQFRUX, EQFRUXGA),
F. Barlier (DTM),
D. Bilitza (IRI, MSIS, MET, HWM),
R.A. Bond (SOLARC, LEOPOLD),
S. Chabrilat (MSISE-90),
G. Drolshagen (meteoroid-debris models),
H. Evans (orbit generator, NIEL),
M.A. Hapgood (coordinate transformations),
A.D. Johnstone (CRRES/LEPA charging data sets),
G. Kockarts (MSISE-90),
M. Kruglanski (UNILIB magnetic field software library),
Y.P. Maltsev (Ostapenko-Maltsev magnetic field model),
K.A. Pfitzer (Olson-Pfitzer magnetic field models),
M. Ratliff (JPL solar proton models),
D.J. Rodgers (GORIZONT/ADIPE charging data sets, DICTAT, SOLARC, LEOPOLD),
S.M. Seltzer (SHIELDSE),
J. Sorensen (ATOMOX),
G. Spitale (JPL solar proton models),
C. Tranquille (solar proton models),
N. Tsyganenko (magnetic field models),
G. Wrenn (EQUIPOT).

DATA PROVIDERS

J.B. Blake (SAMPEX/PET),
P. Bühler (REM on MIR and STRV 1b),
A.J. Coates (Meteosat-3/SEM2),
H.A. Garcia (GOES/SEM),
D.K. Hovestadt (AZUR/EI-88),
E. Keppler (ISEE 2/KED),
A. Lazarus (Indices-WIND/SWE),
H. Leinbach (GOES/SEM),
M.D. Looper (SAMPEX/PET),
G.M. Mason (SAMPEX/PET),
K. Ogilvie (Indices-WIND/SWE),
B.E. Rowland (Indices-WIND/MFI),
J.T. Steinberg (Indices-WIND/SWE),
A.L. Vampola (CRRES/MEA),
D.J. Williams (ISEE 1/WIM),
D. Wilkinson (GOES/SEM),
J.D. Winningham (UARS/PEM),
A. Zehnder (REM on MIR and STRV 1b).

Appendix 4: MOIS5 Maintenance AND CUSTOMER Support Services

This document outlines the maintenance and customer support services provided under annual MOIS Support Service for Rhea's MOIS software product.

1 MOIS Support Service

The MOIS Support Service covers the majority of the maintenance and support needs of MOIS customers. The price of the MOIS Support Service is an annual charge of **15%** of the total price of MOIS. Special support such as on-call, on-site and out of hours support are also possible under special agreement.

MOIS Support Service covers:

- 5 x 8 Unlimited Technical Support assistance for a group of contacts up to the number of licences purchased.
- Access to Rhea's MOIS support forum where you can submit problem reports, obtain product code patches and other product specific technical information.
- Minor Version updates (i.e. in the 5.x range) made available to you as they become generally available.

2 Definition of Priorities

When reporting a problem, please indicate its Customer Priority according to the following definitions:

- **Customer Priority 1 (CP1):** Urgent problem: no useful work can be done: permanent data loss: unrelated applications are killed: most common operations fail consistently
- **Customer Priority 2 (CP2):** Serious problem: a major function is experiencing a reproducible problem which causes major inconvenience: common operations fail consistently: application crashes readily: application exhibits system-wide security holes
- **Customer Priority 3 (CP3):** Problem: a fundamental function is experiencing an intermittent problem, or a common operation sometimes fails: a less common operation fails consistently
- **Customer Priority 4 (CP4):** Minor problems: a less common operation fails occasionally: all other errors
- **Customer Priority 5 (CP5):** Request for enhancements

Rhea reserves the right to re-prioritise a problem report to make it consistent with these definitions.

3 Response Procedures

Rhea responds to problem reports in three stages:

- **1st level response:** Acknowledgment with written or verbal confirmation and assignment of log number upon receipt of problem report.
- **2nd level response:** Temporary fix or workaround communicated to customer by electronic mail or other appropriate means, or in the event that the problem could not be reproduced or diagnosed, the response will indicate such and may recommend actions to help in the diagnosis or request additional information.
- **3rd level response:** Official patch, fix in the next product release or updated manuals, or in the event that the problem still could not be reproduced or diagnosed, the problem report will be closed.

4 Response Times

Rhea wishes to solve CP1 problems quickly while avoiding the need for frequent maintenance releases. If a permanent workaround can be found which minimizes customer inconvenience, the problem will be downgraded to CP3. If a satisfactory workaround cannot be found and the problem requires a software fix, Rhea will make commercially reasonable efforts to have an update available within thirty days (even sooner if possible) and a final fix will be included in the next release. The Customer Priority of a problem report will dictate response times as follows:

Customer Priority (CP#)*	1st Level Response	2nd Level Response	3rd Level Response
CP1	1 day	Cont. effort	Next release/30 days
CP2	2 days	15 days	Next release
CP3	2 days	60 days	Open
CP4	2 days	Open	Open
CP5	3 days	Open	Open

All "days" are standard business days, Monday through Friday.

5 Action Planning and Communication

For Customer Priority 1 problem reports Rhea as part of the second level response will, within 5 days of escalation, provide an action plan for a long term fix for the issue. The action plan will include details on the nature of the fix and the timeframe of resolution. Rhea and Licensee acknowledge that under some circumstances, it may be most expedient for Rhea's support personnel to work on-site at the Licensee's location, which may be under additional terms, conditions, and fees mutually agreed at such time.