

**UPDATE ON THE STATUS OF THE INITIATIVE FOR AN INTERNATIONAL GEOSTATIONARY
LABORATORY (IGeoLab)**

GIFTS on IGEOLAB on Electro-L (2)

(Submitted by WMO)

Summary and purpose of document

To inform CGMS of the status for GIFTS activities between the Space Dynamics Laboratory (SDL) and the Russian Federation agencies.

ACTION PROPOSED

CGMS Members to note the status for GIFTS and comment as appropriate

- Appendices:**
- A. Agenda
 - B. Technical Protocol, Preliminary Assessment of GIFTS on Electro-L#2

GIFTS on IGEOLAB on Electro-L (2)

1. The following is a status report from a recent two-day meeting in October 2005 held in Moscow between Space Dynamics Laboratory personnel and representatives from the Russian Federation's Roskosmos, TSNIMash, Planeta, Science and Research Center and Lavochkin Association.

2. The meeting was considered very successful with the Russian Federation team working diligently to accommodate GIFTS on their second Electro-L spacecraft. This proposed spacecraft would be launched in 2009 and would be positioned at either 76 or 15 East. The second Electro-L mission has been signed off at the agency level, but is not yet formally in the Russian Federation's budget. The Russian team was anxious to place this item on the agenda for CGMS-XXXIII, and the next IGeoLab technical meeting so that upper level Roskosmos management can ascertain the international interest. The agenda for the two meetings, the protocol from the effort, and their presentation with associated comments are attached.

3. Initial concerns to meet thermal requirements were alleviated since the Russian team has done a lot of work using the requirements from previous meetings. The solid models and specifications presented came very close to meeting requirements. The places that did not explicitly meet the requirements are likely to do so after small changes. The SDL Team was very encouraged.

4. While many spacecraft to sensor issues were resolved, several questions on mission design were posed that require further clarification. Issues such as who tasks the sensor, how often it would be tasked, the ground station, processing and data sharing need to be addressed at a higher-level. As noted in the last paragraph of the protocol, the Teams are now ready for the next meeting of the working group.

AGENDA

Technical Interchange on Geostationary Imaging Fourier Transform Spectrometer (GIFTS) installation on "Elektro-L" SC in the framework of International Geostationary Laboratory (IGeoLab) programme**Date(s): 12-13 October 2005****Participants:** Space Dynamics Laboratory (SDL), Roskosmos, TSNIIMASH, "Planeta" Science and Research Center, Lavochkin Association

12 October

09:00 – 09:30	Introduction Introductions of the Participants		Room 217
09:30 – 10:30	Overview of GIFTS development current status 1. GIFTS general properties, GIFTS development current status, GIFTS flight unit development plans 2. GIFTS installation on "Elektro-L" SC and programmatic 3. GIFTS – SC installation requirements	USA	Room 217
10:30 – 11:00	Discussion	All	Room 217
11:00 – 12:00	Overview of "Elektro-L" SC works status 1. "Elektro-L" SC works current status, 2 nd SC flight unit development 2. Results of preliminary developmental work on GIFTS installation on "Elektro-L" SC #2 (Presentation) 3. Technical questions to designers of GIFTS	CDB Center 112 C.102,88,50	Room 217
12:00 – 14:00	Discussion	All	Room 217
14:00 – 15:00	Lunch		Room 108
15:00 – 16:00	Discussion of technical, economic and programmatic aspects relative to "Elektro-L" SC including GIFTS development in the framework of IGeoLab program 1. Specification of member organizations positions with regard to "Elektro-L" SC including GIFTS development in the framework of IGeoLab program 2. Further actions and necessary programmatic & technical aspects	CDB CDB CDB	Room 217

13 October

09:00 – 14:00	Discussion of matters relative to GIFTS – "Elektro-L" SC installation, thermal control and thermal interface 1. Discussion of lay-out proposed by Lavochkin Association 2. GIFTS thermal control and interface issues 3. Steps to proceed	C.102, 112 112 112, 50 CDB	Room 217
14:00 – 15:00	Lunch		Room 108
15:00 – 16:00	Summary of meeting 1. Overview of technical and programmatic issues and necessary actions 2. Further cooperation plan	CDB CDB	Room 217
16:00 – 16:30	Adjourn	All	Room 217

Technical Protocol
Preliminary Assessment of GIFTS on Electro-L#2

October 12 - 13, 2005

Moscow, Russia

Representatives from Lavochkin Association, Science and Research Center APlaneta@, TsNIIMash, Russian Federal Space Agency, and the Space Dynamics Laboratory of Utah State University met at Lavochkin facilities in Khimki, Russia, to discuss the concept of installation and flight of the Geostationary Imaging Fourier Transform Spectrometer (GIFTS) instrument on the Electro-L#2 spacecraft. Meeting agenda and list of participants are attached.

1. GIFTS, a demonstration of next generation weather and atmospheric chemistry operational satellite sounding capability, was initially sponsored under NASA's New Millennium program Earth Observing B 3 mission:

- (a) Budget constraints resulted in NASA designating GIFTS an Engineering Demonstration Unit (EDU) only, with ground testing to be completed within CY2005;
- (b) NASA and NOAA continued instrument and data processing software development;
- (c) EDU can be space qualified and upgraded for 7 year space operations;
- (d) NASA, NOAA, WMO and others are investigating a means to fly GIFTS, resulting in feasibility discussions with Russian Federal Space Agency and Russian aerospace industry.

2. Technical requirements for GIFTS installation on the spacecraft were discussed (instrument design and science objectives levy many unique requirements), with the following conclusions or points of interest raised:

- (a) Instrument design requirements (power, mechanical, pointing, data rates, thermal, etc.) are based on original spacecraft concept;
- (b) Although space qualifying current EDU design allows some limited flexibility in defined S/C interface (command structure, data rates, thermal management, etc.), most requirements remain unchanged (semi-annual yaw flip, attitude and pointing control, station keeping, etc.).

3. Lavochkin provided their preliminary assessment of GIFTS Installation on S/C Electro-L#2:

- (a) Current scheduled launch is 2009 for geostationary orbit;
- (b) Adding GIFTS should not degrade planned RF Electro-L mission;
- (c) Lavochkin recommended installing GIFTS instrument with radiators rotated at 90°;
- (d) SDL agrees to consider the approach to modify the GIFTS instrument/layout to accommodate RF S/C and instrument design, but needs to assess required changes to the GIFTS instrument, to include cost, schedule and performance implications. Preliminary thermal assessment/questions will be provided by SDL by 21 October.

4. Need to develop together a workable proposal to finish and fly the GIFTS instrument, and identify technical, programmatic and political steps to proceed. Can be bilateral or multilateral (IGeoLab). Once a Aworkable@ proposal is developed, SDL will work with NASA and NOAA to develop the funding to finish GIFTS and meet the other requirements of the program. List of tasks to be accomplished:

- (a) SDL brief NASA, NOAA, and WMO on Electro-L#2 GIFTS concept;

- (b) Lavochkin will brief RSA and other RF organizations as needed, to participate in the IGeoLab working meeting;
- (c) Request IGeoLab working meeting in Europe within next two months to outline a plan to move forward;
- (d) Work political agenda and issues.

Signatures of the Parties:

Gail Bingham
USURF/Space Dynamics Laboratory

Evgeny Afanasyev
Russian Federal Space Agency

Vladimir Babyshkin
Lavochkin Association

Attachments:

1. Meeting Agenda
2. List of participants