

# CEOS Land Surface Imaging Constellation

## TERMS of REFERENCE

for the

### Working Group on Regional Data Set Compilation

#### 1. Introduction

The CEOS Land Surface Imaging (LSI) Constellation seeks to promote the efficient, effective, and comprehensive collection, distribution, and application of space-acquired image data of the global land surface, especially to meet societal needs of the global population. This includes encouraging and facilitating cooperation among the CEOS member space agencies in the operation of their current land remote sensing satellite systems.

One of three major goals defined in the 2008 LSI Constellation Work Plan is to compile one or more regional data sets comprised of mid-resolution optical satellite data acquired by the CEOS space agencies that currently operate such systems. This goal specifically seeks to prototype compilation of data for the Global Land Survey (GLS) 2010 data set. GLS data sets have been produced (or are in production) using primarily Landsat data for the circa 1975, 1990, 2000 and 2005 time periods. These data sets are sources of free orthorectified imagery of the global land surface, and the data have been used by thousands of agencies and scientists in virtually all countries of the world. These data sets have revolutionized the use of mid-resolution imagery for studying large areas. Their value to the science community, in general, and the earth observation community, in particular, has been immense.

The GEO Task on Land Cover (DA-07-02) includes a task to “collect and make openly available mid-resolution image data for the following time periods: 1990, 1995, 2000, 2004-06, 2009-2011.” Except for the 2009-2011 period, these data sets are either complete or currently being produced. The production of the 2009-2011 period data set largely from Landsat data is problematic because of the age of Landsat 5, the scan-line corrector problem on Landsat 7, and near certainty that the Landsat Data Continuity Mission (LDCM) will not be operational any earlier than late 2011. Accomplishment of the LSI Constellation goal on **regional data set compilation** will be an important first step toward the compilation of GLS2010 through avenues of international collaboration. Work undertaken by the LSI Constellation in pursuit of this 2008 goal will be organized and led by a working group of the LSI Constellation.

#### 2. Name

The name of the working group shall be The CEOS LSI Constellation **Working Group on Regional Data Set Compilation (WGRDSC)**.

#### 3. Summary

The CEOS LSI Constellation seeks to compile one or more regional data sets comprised of mid-resolution optical LSI data contributed by member agencies. The compiled data sets are expected to be initial components of the GLS2010. In addition, the effort is intended to help prototype development of the GLS2010, where the role of international collaboration is more important than it has been in development of previous GLS data sets.

#### **4. Role of the Working Group**

The WGRDSC will be responsible for the overall definition and implementation of the work required to compile, using satellites operated by CEOS member agencies, mid-resolution optical data covering one or more regional areas defined by the working group. That role includes addressing the following objectives.

- A. Select one or more regions (sub-continental to continental in size) for which mid-resolution optical LSI data sets will be compiled from data acquired in 2008, or from data yet to be acquired, by CEOS member agency satellite systems. If more than one region is selected, data compilation may proceed in a phased approach.
- B. Develop an Implementation Plan for accomplishing this goal.
  - 1) define the strategy for determining what systems appropriately can contribute to the selected regional compilation(s).
  - 2) outline a plan for determining what existing data can contribute to the compiled data sets.
  - 3) propose a strategy and schedule for acquiring data needed to complete the regional compilation(s) and for making those data available to the science and applications user communities.
  - 4) identify technical and practical issues that likely will arise during the course of the project work, and propose strategies for dealing with them.
- C. Carry out the Implementation Plan.
- D. Assist the LSI Constellation Study Team in developing the arrangements with CEOS agencies to 1) provide existing data and 2) secure access to data needed to complete the regional compilation(s).
- E. Based on results of regional data set compilation, including lessons learned, propose logical next steps for acquiring new data to contribute to GLS2010.
- F. Other tasks as necessary and appropriate.

#### **5. Governance**

The WGRDSC will be led by two or more Co-Chairs, who will be responsible for ensuring that activities undertaken by the working group progress in a timely way. The WGRDSC will function generally as an independent working group of the CEOS LSI Constellation Study Team. It will exercise significant autonomy in its activities, deferring to the full LSI Constellation Study Team only in matters of a political or policy-related nature that require interaction with the CEOS agencies contributing data to the regional data sets, such as negotiating conditions under which specific data sets will be provided to the regional data set compilation task. WGRDSC Co-Chairs will be responsible for keeping the LSI Constellation Study Team Co-Chairs informed of general activities and progress.

#### **6. Working Group Structure**

##### **6.1 Membership**

The WGRDSC will be comprised of an unspecified number of members sufficient to define and accomplish the work needed to successfully achieve this goal. Members will be appointed by the Co-Chairs of the WGRDSC, who particularly will encourage LSI Constellation Study Team members who represent agencies currently operating mid-resolution optical satellite systems to serve on the working group or appoint a colleague from their agency to do so. Any member of the LSI Constellation Study Team may elect

to serve on the working group, but other members appointed by the Co-Chairs are not required to be affiliated with a CEOS Member or Associate Member. Term of membership shall be for the duration of time required to complete the tasks associated with this goal. New members may be appointed by the Co-Chairs as necessary to meet emerging requirements or fill vacancies resulting from departure of former members.

## 6.2 Role of the Co-Chairs

The Co-Chairs are responsible for primary leadership of the WGRDSC. They appoint working group members and provide overall direction in the development and implementation of the strategy to be followed in compiling the regional data sets and in helping to prototype processes that may be useful in GLS2010 development. Co-Chairs schedule and notify the members of meetings of the WGRDSC and otherwise keep the members informed of working group activities and needs. The Co-Chairs establish sub-committees of the WGRDSC as necessary and appropriate. They are responsible for keeping the LSI Constellation Study Team informed of developments and progress through regular communication with the Study Team Co-Chairs. It is the role of the Co-Chairs to determine when the work of the WGRDSC is complete and to oversee preparation of a final report on the activities and accomplishments of the working group.

## 6.3 Meetings

Meetings of the WGRDSC will be scheduled by the Co-Chairs. It is anticipated that meetings of the working group will be held via telecon. However, face-to-face meetings may be called as necessary and appropriate.

## 7. Deliverables and Schedule

The most important deliverable from this LSI Constellation activity will be the **data** provided to the regional data set compilation(s). A key early deliverable from the WGRDSC will be **the implementation plan** that defines the tasks to be worked on, as well as the WGRDSC strategy and schedule for accomplishing them. A **final report** by the WGRDSC also will be an important deliverable, particularly as relates to the knowledge and insight gained that may help expedite development of the GLS2010. While the work of the WGRDSC addresses a 2008 goal of the CEOS LSI Constellation, it is clear that regional data set compilation will extend at least well into calendar year 2009. Included below are projected timelines for important tasks of the WGRDSC for the remainder of calendar year 2008. Tasks likely to extend into 2009 are so indicated.

### Tasks & Timelines

2008 Work Task	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Establish WGRDSC membership and hold first working group meeting							—					
WGRDSC select one or more sub-continental size regions for compilation of mid-resolution data set(s)							—	—				
WGRDSC develop implementation plan for completion of regional data set compilation goal							—	—	—			
Carry out tasks defined in implementation plan									—	—	—	—
LSI Constellation Study Team to work with WGRDSC and with appropriate CEOS agencies to develop arrangements for providing and acquiring data needed for regional data set compilations									—	—	—	—
Propose logical next steps moving toward GLS2010											.....	.....