



GEOLOGICAL MAPPING OF MARS: A WORKSHOP ON NEW CONCEPTS AND TOOLS

**IL CIOCCO, TUSCANY, ITALY
12 - 14 OCTOBER 2009**

AND

**FIELD TRIP ON THE GEOLOGY OF TUSCANY
15 - 16 OCTOBER 2009**

SECOND CIRCULAR

The Agenzia Spaziale Italiana (ASI) has started through the International Research School of Planetary Sciences (IRSPS) a project to map the surface of Mars using Geographical Information Systems and applying advanced stratigraphic and sedimentological concepts. The U.S. Geological Survey Astrogeology Science Center in Flagstaff, (Arizona, USA) is internationally recognized for its development and publication of planetary geologic maps. ASI, USGS and IRSPS are inviting planetary geologists and mapping specialists to attend this workshop to learn of, discuss, and improve on the concepts and tools that are being developed for the future mapping of planet Mars. The workshop venue is the Il Ciocco Resort in Tuscany, Italy.

Workshop Rationale

The large amount of new data from Mars coming from several current missions is amply supplying the international planetary research community with detailed data, including high resolution images topographic data, spectral mapping, and subsurface radar sounding. This community now has the opportunity to produce major updates to the characterization and interpretation of the geology of the planet. The most fundamental and comprehensive approach to do this is geological mapping. These maps address existing scientific issues and assist exploration programmes in formulating and meeting their objectives. The efficient production of geological maps requires sound technical approaches supported by focused scientific analysis. Fundamentally, a geological map should be focused, relevant, timely, objective, and broadly useable as a context for scientific research.

The workshop will focus on the new challenges planetary geological mapping: (1) new concepts and techniques used in detailed and state-of-the-art geological mapping, (2) GIS and imaging tools and techniques for efficient inclusion of multiple data sets in geological mapping, (3) topographic and subsurface data sets, and (4) any other associated topics suggested by participants. Specific questions to be addressed include: How can and should we distinguish stratigraphic formations and their members? Can we map sedimentary facies? When and where is it appropriate to account for secondary geologic processes and landforms in the delineation and description of geological units? How can computer tools be used for mapping geological units and features? How can we integrate subsurface data, like the data provided by SHARAD and MARSIS subsurface radars, into surface data sets? Using topographic and subsurface data sets, how can we trace unit contacts defined at the surface in orbital images into the subsurface? Which computer tools can we use for the integration of orbital and lander data? How can we get reliable information for and then map such features as paleocurrents, grain size, matrix content, etc.? How can we use geological mapping for future mission planning to advance the exploration of Mars? How can we tackle the geological mapping of candidate landing site for future landing missions? Which approach to use in order to effectively and objectively map the surface and (possibly) subsurface geology of these sites, which are usually exceptionally well covered by data? How to combine the short response time needed by rover exploration with expedited but detailed geological mapping, often critical for making decisions on how where and when to explore following targets/areas?

In the future geological mapping will be not restricted to Mars. Large and detailed data sets will be available for other planetary bodies. Although the aim of this Workshop deals with the geological mapping of Mars, contributions covering other planetary bodies are also welcomed.

Format of the Workshop

The Workshop will consist of three days of sessions and two days of field trip to visit much of the large variety of geological settings in Tuscany. It is also possible to participate to the first day only of the excursion.

Workshop participants are encouraged to be interactively involved in the Workshop by suggesting and proposing activities like computer demonstrations, topics, etc.

The Workshop will be organised in several activities:

1. a half day course/demonstration of the GIS procedures performed at the USGS by Trent Hare,
2. discussion meetings on mapping concepts and methods,
3. computer demonstrations of software, data, and maps both at the oral session and in splinter rooms,
4. oral sessions,
5. poster sessions.

It is expected that some participants will bring their maps to be shown during the poster session. Also, participants could bring material for discussion and demonstration. Contact Angelo Pio Rossi (contact info below).

A room with a few computers with GIS and other software and maps will be available throughout the meeting. Please contact Angelo Pio Rossi if you wish to load any digital products on these computers for display and demonstration.

Venue and Dates

The workshop will be held at the Il Ciocco Hotel and Resort, 12 - 14 October 2009, followed by the field trip. Il Ciocco is a convention centre with accommodations, restaurants and meeting facilities beautifully located in the Tuscany foothills north of the cities of Pisa and Florence, which are both served by airports. Shuttles will be available from both cities (downtown and airport). The shuttle transportation will be organised in September. This transport service will be in operation "to Il Ciocco " on Sunday 11 October and "from Il Ciocco" on Thursday 15 October.

During the Field Trip the participants will spend their nights at Il Ciocco. Therefore they have to reserve the rooms accordingly.

Organisation

Conveners

Enrico Flamini Agenzia Spaziale Italiana, Rome, Italy
Gian Gabriele Ori IRSPS, Pescara, Italy
Ken Tanaka U.S. Geological Survey, Flagstaff, Arizona, USA
Gerhard Neukum Freie Universitat Berlin, Germany
Angelo Pio Rossi ISSI, Bern, Switzerland

Coordinators

General	Angelo Pio Rossi, ISSI, Bern, Switzerland
GIS and imaging	Trent Hare and Jim Skinner, U.S. Geological Survey, Flagstaff, Arizona, USA Stephan Van Gasselt, Freie Universitat Berlin, Germany
Geological Mapping	Monica Pondrelli, IRSPS, Pescara, Italy Ken Tanaka and Jim Skinner, U. S. Geological Survey, Flagstaff, Arizona, USA
Local organisation	Marinella Ercoli, ASI, Italy Stefania Celenza, IRSPS, Italy Adele Graziani, ASI, Italy

Registration

Through 31 July 2009	€ 180 professionals; € 80 students
1st August - 30 September 2009	€ 250 professionals; € 120 students
After 1 October 2009	Onsite registration only € 300 professionals and students

The registration fees include material of the Workshop, shuttle transportation from and to Pisa or Florence, ice-breaker party, coffee breaks, three lunches, and one social dinner.

To register and pay the fees (including field trip) go to the [registration form](#).

Cancellations: Requests for cancellation with a fee refund (less a € 30 processing fee) will only be accepted through 20 September 2009. Those who fail to attend and do not notify the IRSPS prior to the 20 September deadline will forfeit their full fee.

Accommodations

A block of rooms will be reserved for the workshop participants at the Il Ciocco Hotel and Resort. Visit the web site: www.ciocco.it. Two types of accommodations are available:

4 Star Hotel	€ 88 person/night in double room with breakfast € 110 person/night in single room with breakfast
3 Star Hotel	€ 80 person/night in double room with breakfast € 99 person/night in single room with breakfast

These prices will last until the rooms in the reserved block are available.

The accommodation will be paid directly at the Hotel.

The 4 Star rooms are in the main building of the Resort where the Workshop will be held. Cable internet connection is available

The 3 Star rooms are located in dependences of the resort that, though at a walking distance, they can be far from the main building. Cable internet connection is available.

To reserve your accommodation you have to fill in the [Hotel Reservation Form](#).

Il Ciocco
55020 Castelvecchio Pascoli (Lucca)
Tel: +39 348 4448888
Fax +39 0583719629
ciocco.eventi@sonetonline.net

Contact: Francesco Cheloni
Group Department Manager

Who is attending the field trip have to organise the proper reservation at Il Ciocco.

Il Ciocco is located in an isolate position and country side restaurants can be reached only by car. Several options for the dinner are available at the Hotel: the Hotel Restaurant La Veranda, the Restaurant Le Salette, and a Pizzeria.

Field Trip

A two-day field trip is planned after the Workshop. In this field trip, we will visit Permian to Tertiary outcrops of Tuscany ranging from continental to deep-sea turbidites. The nights during the field trip will be spent in Il Ciocco. Therefore, excursion participants have to take care of their own reservations.

The field trip fees are:

First day € 30
Both days € 50

The field trip fees include transportation and lunches. Accommodation at Il Ciocco is the responsibility of the field trip participants.

To register for the field trip, fill in the proper part of the registration form (see above Registration).

The transportation from Il Ciocco to Florence or Pisa will be organised on Friday 16 October for those attending one day and on Saturday 17 October for those attending two days.

Abstract submission and contributions

Participants can contribute by presenting abstracts for oral or poster sessions or other Workshop activities such as demonstrations, mapping concept discussions, etc. Maps will be displayed in a poster session and, if schedule allows, can be explained and discussed at the oral session. Please indicate what type of session you desire for your presentation.

Abstract for oral and poster sessions must be submitted. The text of the abstract must be 500 words maximum and can be submitted filling in the proper [abstract form](#).

Potential contributors and participants are invited to contact Angelo Pio Rossi (address below) for suggestions, proposals, and ideas. In addition, other forms of contribution are welcomed, such as software demonstrations, maps, digital maps, etc.

Early Abstract deadline: 31 July 2009

Late Abstract deadline: 30 September 2009

Schedule

First circular	2 April 2009
Second circular	30 April 2009
Early Abstract deadline	31 July 2009
Early Registration deadline	31 July 2009
Early Field trip registration	31 July 2009
Preliminary programme	5 September 2009
Late abstract deadline	30 September 2009
Late registration deadline	30 September 2009
Late Field trip registration	30 September 2009
Definitive programme	5 October 2009

Forms

[Registration form](#) (including field trip)

[Abstract submission form](#)

[Hotel Reservation Form](#)

Contacts

The Workshop information is available on: <http://www.irsps.unich.it/education/mapping09>.

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