

CONVEGNO di CECINA del 27 MARZO 2004

## LA RICERCA ITALIANA NELLA VALLE DI HESSDALEN

Invio per la pubblicazione sulla *newsletter* del CIPH il contributo di William Taylor, ricercatore della NASA, presso il Centro di Volo Spaziale di Goddard nello Stato del Maryland a poca distanza dalla capitale americana. Ringrazio il dott. Taylor per la sua partecipazione alla conferenza di Cecina (LI) dedicata alla ricerca italiana a Hessdalen.

Flavio Gori, *LoScrittoio.it*  
<http://www.loscrittoio.it>

Welcome to the Conference: The Italian Research in Hessdalen. I'm William Taylor, speaking to you from NASA's Goddard Space Flight Center. I appreciate very much the invitation by my good friend Mr. Flavio Gori to speak to you today. I would like to give my greetings to the Mayor of Cecina, Italy, Dr. Paolo Pacini and the Mayor of Ålen, Norway, Mr. Ivar Volden.

I understand that the President of the Cecina Science Center, Prof. Severino Zanelli, a chemical professor at Pisa University is also here. And from Ålen, Mr. Thor Stuedal. Finally I would like to welcome Eng. Stelio Montebugnoli, the Head of the technological site of the Radio Telescope at Medicina.

GSFC is just outside of Washington DC. Goddard provides Earth orbiting satellites for space science, including those that study the magnetosphere of the earth and Earth sciences, including satellites to monitor weather. Many scientists and engineers work at Goddard and some study radio waves, especially in the Very Low Frequency, or VLF range, central to the Italian research that is being done at Hessdalen. I'm here in part of the Space Science Visualization Laboratory at Goddard, where scientists and artists work together to produce graphics, movies, and visualizations of models of space science phenomena. One of those visualizations is playing on the plasma screen behind me. It shows a coronal mass ejection which includes plasma or ionized gas, being blown away from the sun. It traveling through interplanetary space to the earth, where it is first deflected by the Earth's magnetic field and then captured by the Earth's magnetosphere. The plasma then travels down to the magnetic field lines of the Earth to the polar regions where it causes aurora, common in Norway, but even sometimes seen in Italy and the United States.

I am pleased to have the opportunity to talk to you about the phenomena with radio signatures like the Hessdalen Phenomena. The Hessdalen Phenomena is a research area where people are skeptical because there are not obvious reasons why they observe what they do. People don't have something that they understand that they can relate to the phenomena, thus they find it difficult to understand and to explain what they see. This is typical of high risk, high payoff areas of research. I am reminded of the research of another Italian scientists, Galileo Galilei, who studied and explained the heliocentric solar system.

Many natural phenomena exist in the VLF range, including the

most common, those that are created by lightning. Spherics are the directly propagating signals processed by the magnetosphere. Others fill the magnetosphere and include auroral hiss, chorus, plasmaspheric hiss, lion's roars and many others. They originate above the auroral zone near the magnetic poles, in the magnetosphere, in the magnetopause and in the solar wind, which blows constantly away from the Sun.



NASA has been doing research the area of waves in the plasmas in space for 40 years. The objective of the research is to understand the physics of these regions and plasmas waves are a key part of this understanding. Similarly the VLF waves of the Hessdalen Phenomena may be important to understanding the Phenomena itself. Students and radio amateurs can play an important role in all of this research, through the Inspire project, because they can make many more observations with Inspire receivers, spread over a wider

area than scientists can. They can analyze their data and submit it to data bases. Students and scientists alike can then access the data from the data bases, do correlations and other data processing of the data and come to conclusions about the origin of the signals. We welcome participation by schools in the Cecina area and throughout Europe in Inspire.

**INSPIRE** is a no-profit scientific, educational project. Its mission is to bring the excitement of observing natural and manmade radio waves in the audio region to students and give them a new appreciation for science and technology. Underlying this mission is the conviction that science and technology are the underpinnings of our modern society and that only with an understanding of science and technology can people make correct decisions in their lives, public, professional and private. Stimulating students to learn and understand science and technology is key to them fulfilling their potential in the best interests of our society. It also is an innovative, unique opportunity for students to actively gather data that might be used in a basic research project, such as the Italian research in the Hessdalen Phenomena. Inspire operates with volunteers and has a very modest budget, contributed by NASA and private companies.

Enjoy the conference and the best of luck in your investigations of the Hessdalen Phenomena.

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