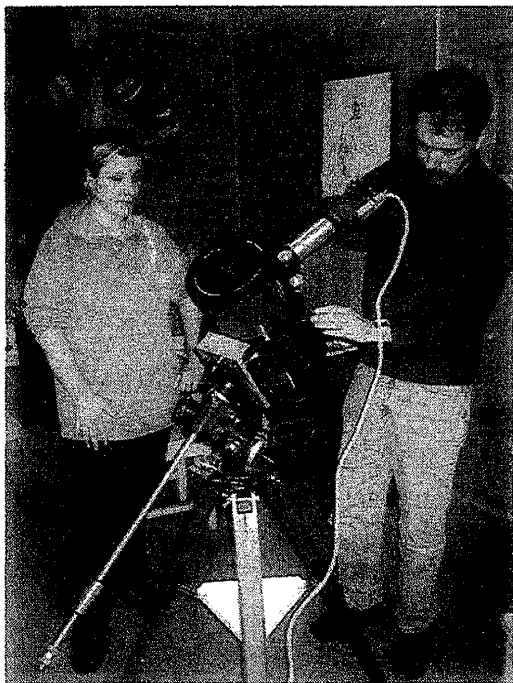


electromagnetic radiation received at the different spectrum analyzers. Discussions were based on the use of RADAR in the 1984 Hessdalen project, when Assistant Professor Erling Strand showed that it was possible to detect the Hessdalen phenomena with RADAR. During these



**Fig.18 Embla 2001  
Telescope & Spectroscope  
S.Righini M.Teodorani**

registrations it was discovered that the phenomena also had an optical invisible state, but visible on radar. Dr. Massimo Teodorani also addressed the importance of detecting the optical spectrum radiated by the phenomena and thereby be able to identify absorption and emission lines. The detection of these lines could enable the researchers to find out what kind of chemical elements the phenomena was composed of. The Embla crew decided to equip the 2001 campaign with an optical spectrometer supplied by Italy and a RADAR system from NORWAY. A portable ultrasound detector, Geiger counter, electric and magnetic field detectors were also to be used for reconnaissance of different areas in the valley. Nine Italian and five Norwegian researchers and students participated in a 4 week long campaign in Hessdalen in the autumn of 2001. The radar system and a new stereo video detection system were mounted in the Blue Box by the Norwegian team before the start of the campaign. No scientific expedition in Hessdalen had been so well equipped and manned as the Embla 2001 mission. Work done in this campaign demonstrated the elusiveness of the phenomena and the problem of correlating registrations on different instruments with the real Hessdalen phenomena. It also showed that the use of high frequency radar had to be done from the highest points in the valley because of false echoes, clutter and noise problems. Low frequency radar had to be developed for use down in the valley. The 2001

campaign was well equipped and a lot of lessons were learned. One was the Radar problem, another was the need for better optical spectrometric instruments and more money. In the technical report from the optical 2001 mission, [www.itacomm.net/PH/](http://www.itacomm.net/PH/), astrophysicist Simona Righini wrote:



**Fig.19 Night Watch 2002**

*During the 2001 campaign a lot of photographs and video material have been collected, providing evidence about the phenomenology of the light events .However, a definitive set of quantitative data hasn't been achieved yet.*

The 2001 campaign had added more data and new knowledge was acquired about how to study the phenomena and which types of instruments to use. In 2002 another campaign was carried out in Hessdalen with a new UHF radar system developed by Dr. Stelio Montebugnoli and MsC Jader Monari. This radar system showed interesting results and indicated that the phenomena had an

invisible state. More optical data was also acquired. In this same period the Østfold University College conducted a 2 week long science camp in Hessdalen for pupils in primary school. In this campaign, base camps at the mountains Rogne and Finså were established. These base camps and techniques developed to establish them, gave important knowledge that later should be used in the 2004 winter campaign in Hessdalen. In 2003 another mission was carried out, mainly to prepare for the winter mission in 2004. The winter mission carried out in February was successful in testing out equipment in near arctic conditions and observations were done from the base camp established at Rogne mountain, where the UHF radar and MPS system

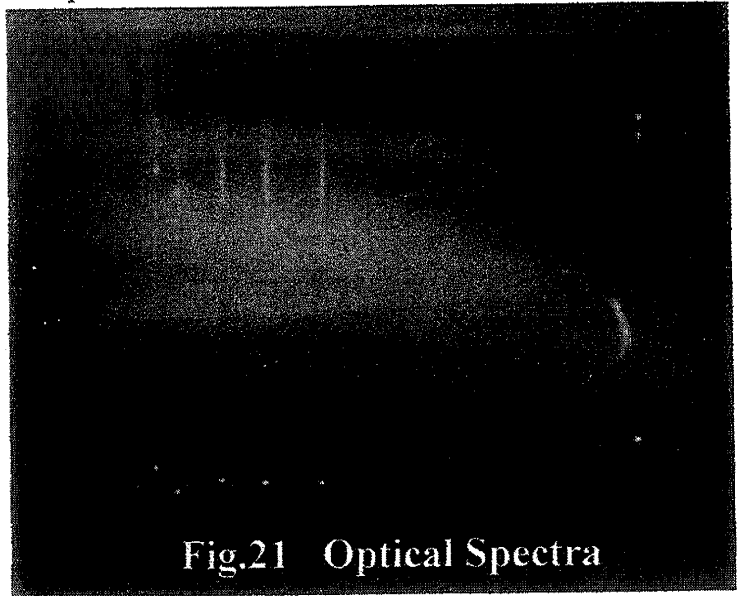


Fig.21 Optical Spectra

were tested out. The MPS system is a transportable TV transmitter and an INSPIRE receiver and transmitter. The system is in a small box supplied with batteries and can be left alone on a mountain top for 12 hours. Signals from the video camera and the INSPIRE receiver are received down in the valley at the research base. Transport is easy in winter time, and the great visibility makes the probability for observing the phenomena high.

So far the campaigns from 2000 until 2004 have given the EMBLA crew unique experience in this kind of field investigations. Papers published on the CIPH internet pages have created healthy debate and will increase the knowledge and quality of data. This will give new expeditions significant information and increase the quality of data recording. The Embla project is a great example of collaboration between Italy and Norway and has given students from both countries outstanding knowledge and unique international experience.

## 9. Conclusion

Until 10 years ago in 1994, the Hessdalen phenomenon was regarded as a pure hoax created by some disturbed minds dreaming about flying saucers. Hessdalen was an isolated small valley in Norway, unknown to the world. Hessdalen is now the most famous valley in Norway due to the unexplainable flying light phenomena which is the target for the scientific research campaign named Project EMBLA. This project ended once and for all the speculative debate about whether the phenomena existed or not. The phenomena has been identified by the Embla crew as a flying luminous object with certain characteristics that make it unique to science. These characteristics are so special that they can lead scientists to understand new concepts in science. The four year long EMBLA campaign has shown the researchers that the phenomena is more elusive than anticipated, and that it may be more than just one phenomenon. The phenomena may be made up of several smaller pieces which can break out from the main body and fly away. The body seems also able to collect fractal pieces of energy/plasma from the ground while flying by. The phenomena must radiate energy because it changes color, but no electromagnetic radiation can

be 100% connected to it at this time. Many interesting spectra in optical and radio frequencies have been obtained, but more data is needed to correlate the radiation to the phenomena. The Embla crew has gained unique experience in obtaining data from such phenomena and is possibly the best equipped and skilled scientific team in the world which is working to solve this kind of mystery. The scientific papers published in the CIPH web pages creates professional debate and helps to develop theories and knowledge. Over 70 students from Italy and Norway have been involved in the program and gained unique experience and built relationships between the two countries. The work done by Dr. Stelio Montebugnoli and his Italian team has been of the highest importance for making the Hessdalen phenomena known to the world as a scientific challenge. Without the support, friendship and hospitality given by Dr. Montebugnoli and his researchers, there would be no Blue Box, no research campaigns would have taken place, and Hessdalen would still be an isolated unknown valley with no scientific possibilities. The Hessdalen valley has been opened for scientific research by the Italian/Norwegian Embla crew and the CIPH organization. The Embla crew is in the frontline of this important international research and will have the best possibilities to solve the mystery.

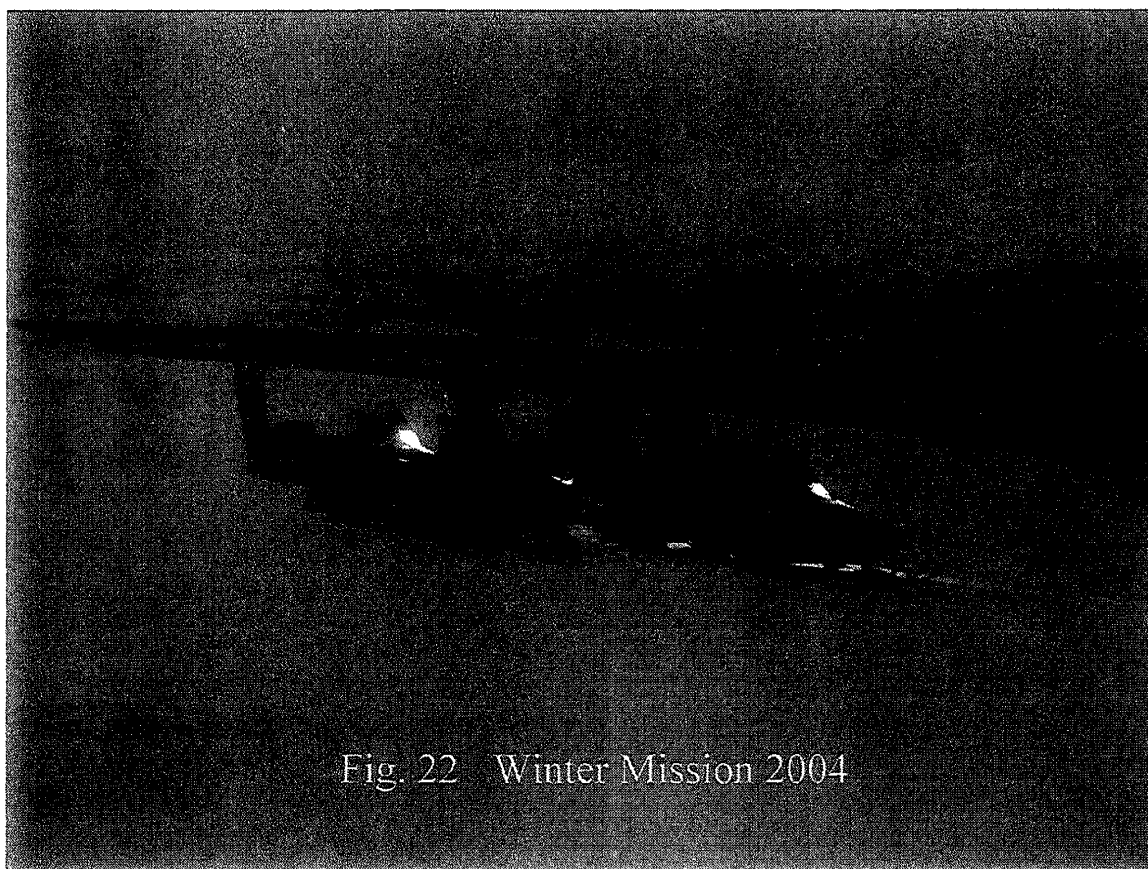


Fig. 22 Winter Mission 2004

# Science Camp

**What is Science Camp?**

**Why is it organized?**

**Where is it held?**

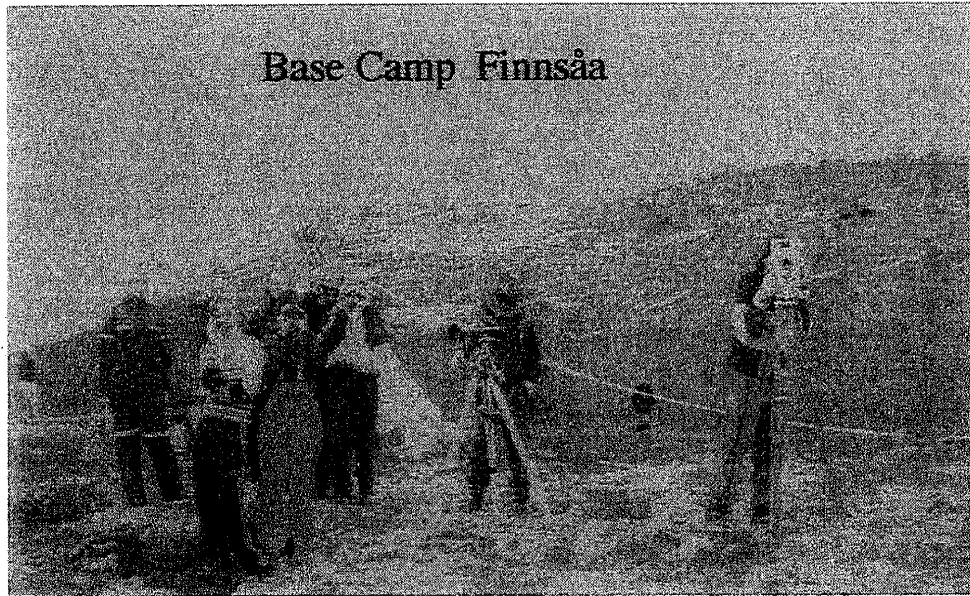
**Leif Lervik**

Counsellor

Østfold University College

Faculty of Engineering and Natural Sciences

Østfold, Norway



Science Camp is a program for the pupils of two junior high schools in the county of Østfold in Norway. It is arranged by the Faculty of Engineering at Østfold University College.

The pupils from the junior high schools went to Hessdalen Valley in Trøndelag, not far from the city of Trondheim, in the central part of Norway. Some of our professors and students went with them also. There, at our research station where we investigate the phenomena occurring in the Hessdalen Valley, the group stayed for a week investigating the light phenomena in the atmosphere of Hessdalen, THE HESSDALSPHENOMENA.

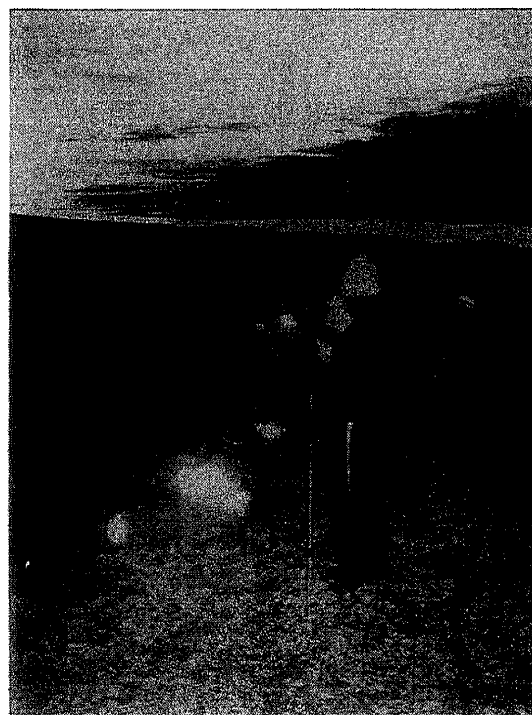


Testing the telescope

As a preparation for the expedition, Østfold students visited the two junior high schools during the spring of 2002. They brought with them different instruments and taught the pupils how to operate them.

During the week in Hessdalen, the pupils were divided into different groups, which had specific purposes. One group measured the radioactivity in the air, others made weather reports, created a journal from the camp supported by video and photographs, edited the WEB site, made spectrum analyses, did surveying, and one group was responsible for the radio communication between the groups and headquarters.

Every night two groups of the young people went to the base camps at the two hills called Rognefjell and Finnsåa. There they spent the night waiting to observe the light phenomena and then make the necessary documentation of it such as video, the distance to the light and its speed.



Searching for the light phenomena

Then, one can ask the question: Why do we make all this effort and arrange Science Camp?

The answer is easy. In Norway we are short of engineers and students of mathematics and physics, as they are also in all of western Europe. The number of engineers is decreasing in Norway. At our university college we wanted to do something about this situation. We want to improve the situation and increase the number of students.

We spent a lot of time and money to market our engineering studies. We arranged fairs at the college, advertised in the newspapers and visited every high school in the area and also across the border to Sweden.

However, we thought that we had to do something special to succeed in our efforts.

We know that young people are curious and they are interested in new cases and mysteries. We wanted to make the most of that fact so we launched the principle of MUMI (or, in English, MAMI):

- Mystery
- Astonishment
- Motivation
- Interest



The meteorological group



Our intention was to use this principle and build good relations with the young people. Working on this, suddenly one of our professors, Bjørn Gitle Hauge ("The Bear" in English), threw this great idea out to our group: "Let's go to Hessdalen!"

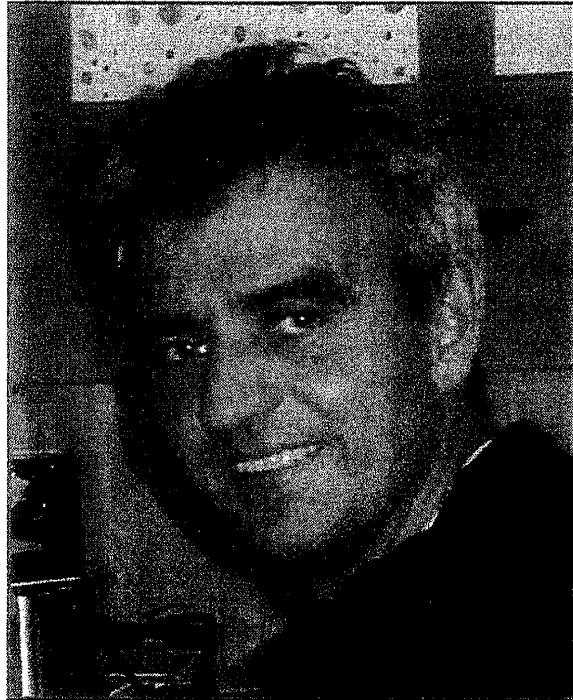
In Hessdalen there is an old school where we can stay, but, more important, there is our research station, the "Blue Box". There we have instruments tracing the light phenomena and sending the results to our university college. At this place in Hessdalen the researchers from our faculty, and our opposite members and good friends from Italy are researching the light phenomena in the atmosphere of Hessdalen. We thought that this phenomena should be interesting also to the pupils from the junior high school.

The mission was prepared during winter and spring of 2002. The following autumn we set out for Hessdalen with two classes. Every class stayed there for one week. In total there were 55 pupils at the camp.

Based on the reports from the participants, the camp was a success, and we are already preparing for a new Science Camp in autumn 2005. The camp might also be interesting for students of natural science in Italy.

What do you think of that?

Will we see you in Hessdalen?



*"Let's go to Hessdalen!"*