10 YEARS OF SCIENTIFIC RESEARCH OF THE HESSDALEN PHENOMENA

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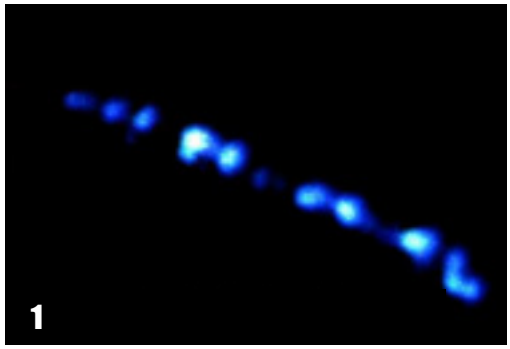
International Meeting "Le Ricerca Italiana nella Valle di Hessdalen, Norvegia (*)"
Cecina, Livorno, Italy. March 2004

1. Abstract

The author has for the last decade been a member of the Hessdalen project research team, and participated in the development of the Hessdalen interactive observatory, also called "blue box". The author has a master degree in electronics and specializes in electromagnetic transmission. The author has long experience with radar and radio transmission from the royal Norwegian Navy. Assistant professor Erling Strand, the founder of the Hessdalen project, conducted together with the author the first international congress of the Hessdalen phenomena in 1994. This congress attracted scientists from all over the world and boosted the scientific research in Hessdalen. Statements from the congress indicated that explanation of the phenomena could lead to new concepts in physics. This congress also started the collaboration between Østfold University College in Norway and CNR in Italy. Together with Dr. Stelio Montebugnoli the author started the EMBLA project, with the purpose of studying the electromagnetic radiation and behavior of the Hessdalen phenomena in 1999. The author has participated in a number of investigations in Hessdalen, and last in the CIPH (Italian Committee for Project Hessdalen) winter mission in Hessdalen 2004. Several students form Italy and Norway has also been involved. Since 1998 automatic surveillance of the valley has been done by the "Hessdalen interactive observatory". Despite of 24 hr. surveillance and well manned and equipped research campaigns in the EMBLA project, no mayor breakthrough has been done. Spectacular pictures and video recordings have been obtained, but correlation with other scientific measurements is hard to find. No "fingerprint" of electromagnetic radiation from the phenomena has been obtained which can identify an unknown light source as the real Hessdalen phenomena. The research has so far demonstrated that the Hessdalen phenomena is difficult to investigate, and explanations hard to find. Despite of this, the EMBLA/CIPH team has gained significant experience in this kind of scientific study and is possible the most competent team to carry out such expeditions in the world. The key to the solution lies in scientific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knowledge and economic resources, and this solution may show us the way to a new storing mechanism for energy.

2. The Hessdalen Project 1984

Mysterious lights have been seen flying around in the Hessdalen valley for over 100 years. The intensity of their appearance made a peak in the period of 1982-1985. Lights were seen daily in this period, and the Hessdalen lights became a world known tourist attraction. No scientific investigation was done until Dr. Erling Strand and his team created "Project Hessdalen" in 1983. During a four week long winter mission in 1984, important data was obtained. Results from this campaign were significant, 53 observations was classified as the Hessdalen phenomena, HP. The phenomena were also seen on radar while invisible, indicating that it was going through different phases and releasing energy. The HP was also observed standing still in the middle of the valley for near two ours. No other campaign has managed to come even close to such amount of data. The next campaign, phase2, was carried out in the winter of 1985 by the same crew, with more instrumentation and better infrastructure. No results were obtained due to heavy winter storms. One research team had to be rescued down from the Rogne Mountain, winter times was dangerous. Scientific reports from phase 1 were published, and Dr. Erling Strand held numerous speeches around the world for the next 10 years. In 1994 the first international scientific congress was held in Hessdalen. This started a new era of scientific investigation in Hessdalen.


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3. The first international scientific congress 1994

In the winter of 1994, 28 researchers from all over the world met in Hessdalen to the first scientific congress about the Hessdalen phenomena. Professor Boris Smirnov, nominee for the Nobel price, and Dr. David Fryberger from Stanford linear accelerator center, SLAC, were of the opinion that the Hessdalen phenomena can't be explained by today's main stream physics, and that further investigation of the phenomena could lead to new concepts in physics. Several papers and speeches were presented at the congress, no one were able to explain all of the artifacts with the phenomena, se table 1. Among the most interesting theories discussed was the "self-contained electromagnetic field theory", "ball lightning model & fractal structure theory" and "rotating plasma theory". The congress urged that investigation of the HP must be intensified, and that permanent instrumentation should be installed in the valley. The congress was not able to advice about what kind of instrumentation that should be used in the hunt for the phenomena. The congress was given high attention in the media, and focused upon scientific investigation. This congress helped the scientific investigation out of "dead water". Speculation in media and rumors of supernatural beings and flying saucers had since 1985 halted scientific investigation. No researcher dared to risk his reputation entering this field of investigation. The congress


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"opened" Hessdalen for scientific research. Attending this congress was astrophysicist Dr..Massimo Teodorani. His publications and connections in Italy should later give birth to project EMBLA, and his work was vital for development of the Hessdalen project.

Theory	Speaker	Country
Ball lightning process/fractal structure	Prof. Boris Smirnow	Russia
Self restricted EM field	Dr. Gert H. Arnhof	Austria
EM standing waves	Dr. E.T. Protasevitch	Russia
EM impuls	Ass.prof. Erling Strand	Norway
Tectonic stress	Researcher P. Devereux	England
Rotating plasma	Prof. Y.S Zou	China
Plasma formation process	Prof. Edward Manykin	Russia
Vorton driven ionizes gass	Dr. David Fryberger	USA

Table 1.
Theories presented at the 1994 congress in Hessdalen

4. The Medicina congress

Shortly after the congress, Dr. Stelio Montebugnoli, were informed about the congress in Hessdalen by Dr. Massimo Teodorani. Dr. Stelio Montebugnoli invited Assistant Professor Erling Strand and Assistant Professor Bjørn Gitle Hauge to visit the CNR radio telescope, located in the small village Medicina outside Bologna, Italy. Dr. Montebugnoli organized two conferences about the Hessdalen phenomena, one at the telescope in Medicina, and one at the CNR facility in Bologna. At these two congresses topics about how to extract data from the Hessdalen phenomena was discussed in detail. The support from Dr. Montebugnoli and the competence at the Medicina radio telescope was crucial for the further development of the research in Hessdalen. Their competence in developing instruments for detecting electromagnetic radiation from faint stars and galaxies, made this place ideal to discuss how to extract information from the Hessdalen Phenomena. For people used to look for mysterious light and radio sources, like quasars far out in the galaxy, the Hessdalen phenomena was not so impressive and mysterious. In the author's experience, astronomers are more used to deal with unexplainable phenomena's than many other researchers. Some of the objects in astronomy have similarities with the Hessdalen phenomena, like the pulsar, the rotating neutron star. Discussions have also been raised about "mini black holes", if this also could explain the power source of the Hessdalen phenomena. At these meetings Assistant Professor Erling Strand and the author learned the basics of radio astronomy research, and the author also spent 6 weeks at the radio telescope to learn more about techniques and instrumentation. The hospitality and help given by the Italian researcher was tremendous, and extremely valuable for the later implementation of the "Hessdalen interactive observatory", the blue box. In the period


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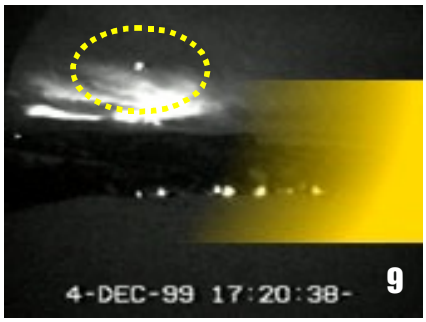
from 1996 until now, several instruments for observing the Hessdalen phenomena has been developed by Italian researchers, instruments of grate importance for the research.

5. Blue box

Back in Norway, Dr. Erling Strand and the author started to work on instruments which could be used to detect optical and electromagnetic radiation from the Hessdalen phenomena. In 1994 a student group made their thesis work on this subject under the guidance of Assistant Professor Erling Strand, Dr Montebugnoli and Dr. Teodorani. The group advised a combination of optical and radio detection system to be developed. In 1997 this work was carried on when a Norwegian thesis group developed the POSIG radio frequency detection system (Fig..7) under the author's supervision. The system could detect signal frequency, signal level and signal bearing in 360^0 degrees, over a bandwidth of 400MHz. Field test was carried out with no significant results, more sensitivity and visibility had to be added. At this point, the system had to be installed in a house with power supply and limited visibility. In Norwegian mountains, all of the houses with power supply is in the bottom of the valleys. A research station had to be built up in the mountain side if any results were to be obtained. The solution had to be a transportable 10x10 feet steel container, with sufficient insulation and temperature control to be able to cope with Norwegian winter conditions. A container was acquired, and work started out to rebuild it for the necessary specifications. In parallel with this, work was started by Assistant Professor Erling Strand to develop an automatic video detection system which was able to filter out all man made optical lights, and to only record light sources which could be the Hessdalen phenomena. This system was connected to internet, and every time a mysterious light showed up a video recorder started, and a picture was displayed on the Hessdalen internet page. This system was coupled together with a magnetometer, also able to send its data to the internet page. The installed equipment was a combined optical and electromagnetic registration system. The container and the equipment were in the autumn of 1998 transported 500km from the Østfold University College to the Hessdalen valley, and installed in the mountain side. This installation had not been possible without the help of the landowner, Mr. Bjarne Lillevold. Power lines was built up to the container, and from 7.august 1998, the systems in the container was up and running. The instruments in the container were totally autonomous, and data was sent to Østfold University College over internet, all of it displayed on http://www.hessdalen.org. This system was in the beginning called "The Hessdalen interactive observatory", later changed to "Hessdalen AMS" (automatic measuring station). Since the container was colored blue, it was nicknamed "Blue Box". The installation was a success, no problems of major art showed up during



the first pilot test in the winter. From 1999 the container was ready to accommodate more scientific equipment to study the Hessdalen Phenomena. Table 2, shows a list of the instruments installed in Hessdalen from 1998-2004.

Instrument	Installation	Supplier
B&W CCD Automatic video recording system	1998	Norway
Fluxgate magnetometer	1998	Norway
POSIG radio signal detection system (dismantled)	1998	Norway
ELFO extremely low frequency observer (0,1-20KHz)	2000	Italy
Sentinel 1 spectrometer (1.42GHz)	2000	Italy
INSPIRE Nasa ULF receiver (100-22000Hz) E-field	2000	Italy
Raytheon Radar	2001	Norway
Color CCD Stereo Automatic video rec. system	2001	Norway
Weather station	2002	Norway
VHF & UHF spectrum analyzer	2003	Italy
UHF Radar	2004	Italy

Table 2
Instruments installed permanent in Hessdalen

6. Student exchange & Thesis work

A key to the development of the Hessdalen interactive observatory, Blue Box, is the work done by Italian and Norwegian students in their thesis work. Already in 1996 the Italian engineering student Christiano Miani made his thesis work on a FFT analyser for Hessdalen under the supervision of Dr. Stelio Montebugnoli. Several Italian and Norwegian engineering students have made their thesis work on developing instruments for detecting optical and electromagnetic radiation from the Hessdalen phenomena. Over 70 students from both countries have participated in the project from 1994 until 2004. Students are motivated by the unexplained mystery and the possibility to make a scientific breakthrough. Persons able to supply data that can explain the physics behind the Hessdalen phenomena will attend world wide publicity. In 1998 talks started between the author and Dr. Stelio Montebugnoli about the possibility to exchange students between Norway and Italy. Students coming from Norway to Italy were to work with Italian scientists and students at the Medicina radio telescope, developing instrumentation for Hessdalen. Students from Italy were to take part in the development in Italy, and then go to Hessdalen in Norway for installing the instruments and take part in a scientific research mission. The first two Norwegian students to participate in this exchange program were Petter Norli and Cecilie T. Langvik, (Fig.12) in 1999. Both were majoring in electronic engineering. Their thesis report is available at the http://www.hessdalen.org in English version. Their task was to make a plan of a scientific program for studying the Hessdalen phenomena, this plan was called: “A preliminary study of EMBLA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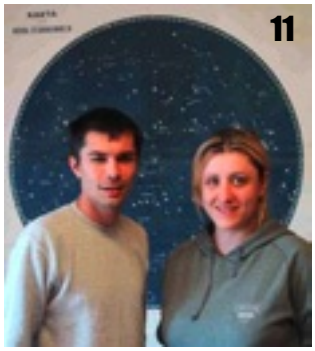
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2000". Embla 2000 was the name of the international research project between Italy and Norway. The task of the project was to Study the electromagnetic signature and behaviour of the unexplained Hessdalen phenomena.

7. Project Embla

The plan for Project Embla was worked out by Dr. Stelio Montebugnoli and the author. This plan was presented and adopted by IRA (Institute for Radio Astronomy) in Bologna, Italy, and the ØUC (Østfold University College) in Sarpsborg, Norway. Dean Tor Langvik Hansen ØUC and Director Lucia Padrielli IRA authorized and signed the plan 16/4-1999. Main objective for the Embla 2000 plan was:

To undertake a 3-month long research period in the Hessdalen valley in the summer of 2000 aimed at extracting new data from the Hessdalen phenomena (radio frequency field) through the use of spectrum analyzer used in radioastronomy, in radio frequency monitoring systems and in Seti program. In previous observations carried out in the past from ØUC, a weak pattern has been observed in the 0,1 - 1,5 GHz range in concomitance of the phenomena breakthrough.
The project will be carried out as cooperation between Østfold College and the Instituto di Radioastronomica, Italy. The project will involve students and researchers from both countries.
As the Hessdalen phenomena generates light which, according to data gathered, indicates that it affects the earths magnetic field, the aim of the project will be to map out radio pattern from the Hessdalen phenomena and thereby try to determine whether Hydrogen is a part of the phenomena (radio emission at 1.42 GHz). This will give new and unique knowledge of the Hessdalen phenomena, which could be of significant international interest.

During the spring of 1999 the two Norwegian engineering students, Petter Norli and Cecilie T. Langvik, had been working out a preliminary instrumentation development and study for the Embla 2000 campaign, together with Italian researchers at the Medicina radiotelescope (Bologna, Italy),under the supervision of Dr. Stelio Montebugnoli and MsC. Jader Monari. The main objective of this work was to purchase, build and measure a front end receiver with antenna and preamplifier, for analyzing electromagnetic radiation from the Hessdalen phenomena. They also investigated and proposed a spectrometer for analyzing the signals. This report gives a theoretical background for studying electromagnetic radiation from the Hessdalen phenomena, and made a basis for the Norwegian researchers to prepare for the Embla 2000 campaign next year. During the spring of 2000 Dr. Stelio Montebugnoli and his crew developed several new instruments to be used in Hessdalen, and a special receiver for ultra low electromagnetic radiation was developed, the ULFO system (ultra low frequency observer). This system was able to detect the magnetic field in the low frequency range of 100 – 20000Hz. This was a very sophisticated system with two magnetic field antennas, preamplifiers and correlation receiver made to avoid the 1/f-noise, which is a problem in

the low frequency band. Another system, Sentinel I system for detecting radiation from ionized hydrogen at the 1.42 GHz was made ready with a omni directional antenna, able to detect electric field. On suggestion from Flavio Gori, European manager for the Nasa Inspire program, another ultra low frequency receiver named INSPIRE, Interactive NASA Space Physics Ionosphere radio experiments, was developed for the EMBLA 2000 campaign. This receiver was coupled to a 100m long dipole electrical field antenna, and the post processing FFT software was GRAM. This last system has later been further developed and refined by Norwegian students into a "stereo" system where both electric and magnetic field can be detected and analysed instantly. This INSPIRE-stereo system has been used with success in several campaigns in Hessdalen after 2000. In August 2000 Dr. Stelio Montebugnoli, MsC. Jader Monari, Dr. Massimo Teodorani and 4 other researchers left Italy and drove to Hessdalen by car & truck to install the instruments in the "Blue Box" in Hessdalen. The Italian Embla crew worked together with assistant professor Erling Strand, the author and three other Norwegian colleagues, to install instruments and antenna systems during the first week of operation. This kind of instrumentation had never been used in Hessdalen before, and the attention from media was huge. The operations combined optical observations with monitoring the spectrometers mounted in the container. Spectrometers were programmed to store interesting signals when detected. But what was an interesting signal? No one had ever detected electromagnetic signals from the Hessdalen phenomena with 100% certainty that the signals were radiated by the phenomena. To obtain sufficient data, the Embla team had to store huge amount of data to be sure that they was able to detect the correct signals. The amount of data from the receivers, ULFO – SENTINEL I – INSPIRE, that had later to be analyzed. Instruments were collecting data for 25 days, and slowly they started to give new information. This information raised new questions and gave no hope to a quick solution. In the technical report from the EMBLA 2000 mission, report available at: http://www.itacomm.net/PH/ Dr. Stelio Montebugnoli, Dr. Massimo Teodorani & MsC Jader Monari wrote:


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The Embla project employed radio spectrum analyzers which where automatically in function for 25 days, and discovered highly anomalous signals which were characterized by a spike-like and a doppler like morphology. Moreover during the many planned sky watching sessions, it was possible to sight repeatedly luminous atmospheric phenomena in various points of the Hessdalen.

The results of the Embla 2000 campaign are detailed described in the report available at the CIPH web pages. The Italian researchers had brought with them the "firepower" of radioastronomy equipment into a new scientific field, and huge amount of post processing had to be done. To be able to extract signals which were radiated from the phenomena, scientists needed to know which signals that was radiated from other natural and manmade sources in the valley. This called for more monitoring of the electromagnetic radiation in Hessdalen, and told the Embla crew that the campaign in 2000 was joust the first one of many to come.

8. Embla 2001-2002-2003

The Embla 2000 campaign had generated huge amount of data that needed post processing, and no clue was given regards to which signal frequency to search for. No beacon ore "radio station" in the frequency band was found, which could be directly connected to radiation from the Hessdalen phenomena. In the spring of 2001, Norwegian students Maria Erring and Hermann Fjelberg, worked together with Italian students Andrea Cremonini and Simona Righini (**), to post process data from the Embla 2000 campaign, develop new instrumentation, and prepare for the new Embla 2001 campaign. In May 2001 a congress about the new Embla 2001 campaign was held at the Medicina radiotelescope, where researchers, students and representatives from both countries met to present papers and discuss the forthcoming campaign in Hessdalen. This congress conducted by Dr. Stelio Montebugnoli was an important meeting for researchers working on this kind of phenomena's. All kinds of different instrumentation were discussed, and the need for a RADAR system in Hessdalen was addressed. Some believed that the phenomena had an optical invisible high-energy state, rotating/moving in a self contained field. If something disturbed this self contained field, it would start to radiate energy and that the optical appearance, when the colour changed from white to yellow and read, indicated that the phenomena was dying. It was also necessary to raise the detection rate to correlate the optical signal with 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 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 make the researchers able to find out what kind of chemical elements the phenomena was composed of. The Embla crew decided to equip the 2001 campaign with optical spectrometer supplied by Italy, and RADAR system from NORWAY. Portable ultrasound detector, Geiger counter, electric and magnetic field detectors was also to be used for reconnaissance of different areas in the valley. 9 Italian and 5 Norwegian researchers and students participated in a 4 week long campaign in Hessdalen in the autumn of 2001. 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


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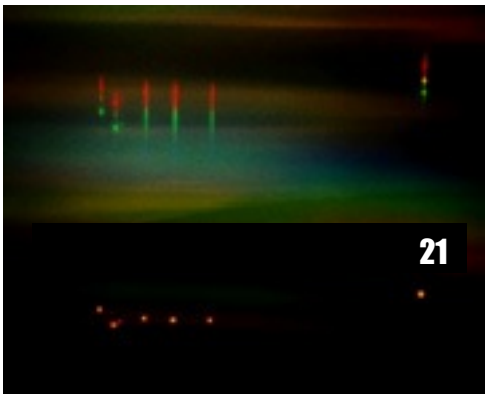
manned as the Embla 2001 mission. Work done in this campaign demonstrated the elusiveness of the phenomena, and the problem of correlate registrations on different instruments with the real Hessdalen phenomena. It also showed that the use of high frequency radar had to be done from the highest points in the valley because of false echoes, clutter and noise problems. Low frequency radar had to be developed for using 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, http://www.itacomm.net/PH/ , astrophysicist Simona Righini wrote:

During the 2001 campaign a lot of photograph and video material has been collected, providing evidence about the phenomenology of the light events .However, a definitively 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 type 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 mountain Rogne and Finså was 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 was done from the base camp established at Rogne mountain, where the UHF radar and MPS system was tested out. The MPS system is a transportable TV transmitter and a INSPIRE receiver&transitter. 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 is received down in the valley at the research base. Transport is easy in winter time, and the grate visibility makes possibility for observing the phenomena high.



So far the campaigns from 2000 until 2004 has given the EMBLA crew unique experience in this kind of field investigations. Papers published on the CIPH internet pages has 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

For 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 if the phenomena existed or not. The phenomena has by the Embla crew been identified 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 joust one phenomena. 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 frequency 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 mystery. The scientific paper published in the CIPH web pages creates professional debate, and helps to develop theories and knowledge. Over 70 students from Italy and Norway has 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, no Blue Box, no research campaigns had been obtained, and Hessdalen would have been 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 international important research, and will have the best possibilities to solve the mystery.

Note

(*) Italian Reserch in Hessdalen Valley, Norway. International Meeting organized by Flavio Gori, LoScrittoio, (http://www.loscrittoio.it)

(**) Simona Righini achieved master degree in Astronomy in 2002; Andrea Cremonini achieved master degree in Electronic Engineering in 2000.

Figure

1) The Hessdalen Phenomena 1984
2) UHF Radar. CIPH Winter Mission 2004
3) Research Station in Hessdalen winter 1985
4) 1994 First International Congress of the Hessdalen Phenomena
5) 1995 Author and Stelio Montebugnoli
6) Medicina (Bologna), Italy, Radio Telescope
7) POSIG Antenna & Receiver
8) Blue Box 2001
9) HP (Hessdalen Phenomenon) detected by Blue Box
10) Norwegian students Maria Erring and Hermann Fjelberg at the Radio Telescope in Medicina
11) EMBLA 2001, Andrea Cremonini and Simona Righini in Hessdalen
12) First Norwegian students at the Radio Telescope in Medicina
13) Container signboard
14) ELFO Magnetic field antenna

15) Jader Monari, Andrea Cremonini and Stelio Montebugnoli
16) Spectrum analyzers SENTINEL 1 – INSPIRE – ELFO, Andrea Cremonini
17) EMBLA 2001 Congress, Medicina, Italy
18) Telescope and Spectroscope, Simona Righini and Massimo Teodorani
19) 2001, Night watch
20) 2002, UHF Radar system
21) Optical Spectra
22) CIPH and Project Hessdalen: Winter Mission 2004

(Riassunto in Italiano)

10 ANNI DI RICERCA SCIENTIFICA DEI FENOMENI DI HESSDALEN

Negli ultimi dieci anni l'Autore è stato membro del gruppo di ricerca del Progetto Hessdalen, ed ha partecipato allo sviluppo dell'Osservatorio Interattivo di Hessdalen noto come "Blue Box".
L'Autore è laureato in elettronica ed è specializzato in trasmissioni elettromagnetiche. Inoltre, l'autore ha una lunga esperienza con radar e trasmissioni radio nella Royal Norwegian Navy. Insieme al prof. Erling Strand, fondatore del Progetto Hessdalen, ha organizzato nel 1994 il Primo Congresso Internazionale sul fenomeno Hessdalen, che ha attirato numerosi scienziati da tutto il mondo e che è stato di grande impulso per la ricerca ad Hessdalen.
Dichiarazioni rese durante il congresso indicavano che la spiegazione del fenomeno avrebbe potuto portare a nuovi concetti in fisica. Il congresso è stato anche l'inizio di una collaborazione tra l'Østfold University College in Norvegia ed il CNR in Italia.
Nel 1999, con il dottor Stelio Montebugnoli l'Autore ha dato inizio al progetto EMBLA, con l'obiettivo di studiare l'emissione elettromagnetica e il comportamento del fenomeno di Hessdalen. L'Autore ha partecipato a numerose investigazioni ad Hessadalen, l'ultima delle quali è stata la spedizione invernale del CIPH nel 2004. Sono stati anche coinvolti diversi studenti provenienti dall'Italia e dalla Norvegia.
Dal 1998 la sorveglianza automatica della valle è affidata all'"Hessdalen interactive observatory".
Malgrado la sorveglianza 24 ore su 24 e campagne di ricerca all'interno del progetto EMBLA ben dotate di uomini e ben equipaggiate, nessun importante passo significativo è stato fatto.
Sono state ottenute fotografie e videoregistrazioni spettacolari, ma correlazioni con altre misurazioni scientifiche sono difficili da trovare.
Non è stata ottenuta nessuna "impronta digitale" della radiazione elettromagnetica proveniente dal fenomeno che possa identificare una sorgente di luce sconosciuta come vero fenomeno di Hessdalen.

La ricerca ha per ora dimostrato che il fenomeno di Hessdalen è difficile da investigare, e spiegazioni sono difficili da trovare. A dispetto di ciò, il gruppo EMBLA/CIPH ha ottenuto un'esperienza significativa in questo tipo di studio scientifico e ed è probabilmente il gruppo più competente per effettuare spedizioni di questo tipo nel mondo. La chiave della soluzione sta nella conoscenza scientifica e nelle risorse economiche, e questa soluzione potrebbe indicarci la via per un nuovo meccanismo di stoccaggio energetico.