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It’s a Bird, It’s a Plane—It’s the Mineseeker Airborne Mine Detector!

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**FEATURE**

**It's a Bird, It's a Plane—It's the Mineseeker Airborne Mine Detector!**

Partnering with QinetiQ and The Lightship Group, the Mineseeker Foundation is developing a system to revolutionize mine detection. By deploying the first operational airborne landmine survey system, the foundation aims to provide the mine action community with a quicker and more efficient survey tool. Additionally, the Mineseeker has the potential to be useful in a number of other areas necessary for development in mine-affected countries.

*by Nicole Kreger, MAIC*

**Background: A Need for Improved Mine Detection Techniques**

The Mineseeker Airship hopes to fulfill current demining and survey needs. This airborne mine detector uses wideband synthetic aperture radar technology and an airborne platform to quickly scan an area for mines. Of the most effective of this technology would be for area reduction. Distinguishing mined areas from clear areas is extremely important, because people in mine-affected countries will often avoid using clear land for fear that it is contaminated. Effective area reduction helps return land to those people quickly and also allows mine action agencies to mark land that is contaminated so that civilians avoid danger until the mines can be cleared.

**The Mineseeker Platform**

The Mineseeker makes use of Ultra Wideband Synthetic Aperture Radar (UWB SAR), which is able to penetrate objects such as foliage and can detect objects buried in the ground. UWB SAR is able to produce the highest resolution images of any radar of its kind. Use of this radar requires as little vibration as possible in a humanitarian role and in a post-conflict environment.

The trials in 2000 showed that the Mineseeker is able to detect mines and UXO that are laid on the surface, hidden by foliage and buried in the ground. The UWB SAR scans areas at a rate of 100 sq m per second, and it records an overwhelming amount of information. As Mineseeker founder Mike Kendrick puts it, "In that second, it transmits as much data as is excused in the entire British Library." Such information would be useful to any number of organizations and government ministries.

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**Conclusion**

The airborne multisensor system, on board helicopter Bell 206, was directed primarily toward minefield research for the general survey (as a complementary process to the ground-based general survey). But it is not limited to these purposes. Other applications are possible. This is the first fully digital airborne multisensor system in Croatia. Its development was motivated and enabled by the scientific project ARC, funded by the European Commission, and it was realized through the potential, experience and human resources already existing in Croatia in the field of airborne remote sensing.

*All graphics courtesy of author.*

**References**

9. Baij, M., Gold, H., "UWB SAR of this type in the world. The Mineseeker is able to detect mines and UXO that are laid on the surface, hidden by foliage and buried in the ground. UWB SAR scans areas at a rate of 100 sq m per second, and it records an overwhelming amount of information. As Minesecker founder Mike Kendrick puts it, "In that second, it transmits as much data as is excused in the entire British Library." Such information would be useful to any number of organizations and government ministries.

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**Contact Information**

Mladen Bajic, Assoc. Prof., D.Sc.
Geodetic University of Zagreb
Scientific Council of CHROMAC
Ulica grada Vukovara 226 c
10000 Zagreb, Croatia
Tel. +385 1 460 917
E-mail: mladen.bajic@fgz.hr

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**FEATURE**

**Survey of Suspected Mined Areas From a Helicopter**

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"Mineseeke is not the panacea for landmines; it's a tool, it's something that can be used. We're not going to replace the manual deminer with a stick in the ground, but what we hope to do is give him a smaller area to search. Landmines are a problem that we can solve. They're not going to go away, but I think that if we work together and we find resources, it is a thing unlike almost anything else, that can be solved within our lifetimes. And if we get together, we can do it."

Kendrick recognizes the potential positive impact of Rotarian involvement and is eager to partner with them: "[W]e hope to get the foundation adopted by the Rotarian movement in order to raise cash on a global basis.5 Several clubs have shown their interest in this project already and the newly formed "Fellowship of Rotarians for Mine Action" may lead to further support.

The Future of the Mineseeke

The Mineseeke Foundation's goal is to develop and deploy several systems to countries with severe landmine problems. The organization aims to provide the system at no cost to the host nation. Mr. Kendrick explains, "We don't want to differentiate just by money; in other words, we shall go to the area of the most need."

Once Mineseeke has acquired the necessary funding, the organization will use a closed tender bid process to determine which suppliers will develop the prototype into the customized system they plan to deploy, and the Mineseeke advisory board will decide which suppliers to contract for the project. As a leading company in its field, QinetiQ, Britain's largest independent science and technology company, is the leading contender for providing these services. From development through to the deployment of the first system will take about one year. According to Mr. Kendrick, the first Mineseeke system will go to "an area of outstanding need yet to be defined."51 Many countries have a great need for better wide-area mine-detection tools and are interested in receiving the system. The foundation hopes to deploy five ships to mine-affected parts of South America, Africa, Asia and central Europe.

Conclusion

Through trial implementation, the prototype Mineseeke system has proven its viability as an aerial survey tool. It is gaining support from many people, and has already been endorsed by Nelson Mandela, Sir Richard Branson and Queen Noor of Jordan. With hopeful prospects for funding and growth, visibility worldwide, the Mineseeke Foundation will soon be able to go forward with the momentum it gained through its successful trials. With the Mineseeke in the toolbox, the mine action community will be one large step closer to making the world safe from landmines.

*A full courtesy of the Mineseeke Foundation.

Endnotes

2. Telephone Interview with Mike Kendrick, October 23, 2003.
3. E-mail correspondence with Mike Kendrick, October 22, 2003.

Contact Information

Mike Kendrick
Mineseeke Foundation
PO Box 3661
Bridgewater, Shaftesbury
WV7 5ZE
UK
Tel: +44 1746 788689
Fax: +44 1746 760859
E-mail: mkendrick@virgininternet.com
Website: www.mineseeke.com

Nico Stuger
MAIC
E-mail: nico@maic.us

Footprint left by a cluster bomb strike, as viewed from the Mineseeke Airship.

in areas ranging from agriculture to transportation. Thus, the Mineseeke proved its effectiveness in mine action applications as well as a multitude of other areas.

Current Status of the Project

Currently, the Mineseeke Foundation is attempting to acquire funding for the project. The foundation's current goal is $20 million (U.S.). They have approached several foundations regarding funding and are currently waiting for responses. According to Mr. Kendrick, the foundation is also "involved in discussion with several groups, including a government who has reacted positively to the funding proposal."

The foundation is also pursuing a major deal in the United States as well as discussions with the UK government for funding assistance. The Mineseeke Foundation has also arranged the interests of Rotary groups around the world. The organization attended the Rotary International Convention in June 2003 with the hopes of increasing awareness about the mine problem and about the foundation and acquiring the support of Rotarians. Mr.

by Hemi Morete, Programme Officer, CMA

Introduction

The planning of safe, effective and efficient mine action requires accurate, appropriate and timely information. During the early stages of a mine action programme, the availability of such information may be limited. Once Hirne, however, systems are established to collect, collate and evaluate information on the landmine threat and its impact. Such information is needed for planning at the strategic and operational levels and should be made available in a timely manner to planners at the national level (normally the staff of a mine action centre), to implementing partners such as demining non-governmental organizations (NGOs) and to other stakeholders such as the donor community.

Prior to the development of the LIS process, the scope and nature of the landmine problem was generally expressed in terms of the number of mines, the total area of land contaminated, or a combination of the two. The LIS process provides a different approach by measuring the socio-economic impact of mines on affected communities. Such impact surveys have been completed for six countries: Yemen, Chad, Mozambique, Thailand, Cambodia and Azerbaijan. Surveys are underway in Bosnia-Herzegovina, Eritrea, Ethiopia, Lebanon, Somaliland and Vietnam and are scheduled to begin shortly in Angola and Afghanistan.

Those countries that have benefited from a full impact survey should have sufficient information to enable efficient and effective mine action planning. Notwithstanding the success of the global landmine survey programme, there is an ongoing debate on whether the LIS provides sufficient "technical" information on the landmine and UXO threat. It has been suggested that a national LIS should provide more detailed information on hazardous areas (by defining polygons) to enable the more efficient use of limited technical survey and clearance capabilities.

Following discussions at the SWG meeting in Geneva in February 2003, Crossfield Mine Action (CMA) was invited to prepare a discussion paper for consideration at the next SWG meeting.

Information Needs

The global application of the LIS has successfully refocused attention away from a purely quantitative measurement of the mine and UXO threat to a qualitative assessment of impact on mine-affected communities.

The purpose of a Landmine Impact Survey (LIS) is "to facilitate the prioritisation of human, material and financial resources supporting humanitarian mine action at the national, regional and global level."

The LIS process provides a different approach by measuring the socio-economic impact of landmines on affected communities. The global application of the LIS has successfully refocused attention away from a purely quantitative measurement of a mine and UXO threat to a qualitative assessment of impact on mine-affected communities.