

**Open Source Solutions**  
**“Global Security and Global Competitiveness”**

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**Presented by**

**Ted Nanz**

**President of SPOT Image Corporation**

- **Good afternoon ladies and gentlemen. It's a great day!**
- **Speaking right after lunch, I am going to ask you to do something that may prove useful. Stand, stretch, turn around and introduce yourself to somebody at your table, or at an adjacent table whom you do not know.**
- **Thank you very much and please be seated.**
- **I would like to thank Mr. Robert Steele and Open Source Solutions for conducting this symposium and also to recognize several people who are not here this afternoon, but have played a critical role over the years in furthering the use of open source satellite imagery within the Defense community: US Air Force General Mike Dugan; US Air Force Major General Phil Nuber; US Air Force Col. Selectee Snake Clark; and retired US Air Force Lt. General Norm Wood, now President of AFCEA.**
- **It is an honor for me to share this keynote today with Doug Smith, Deputy Director of the Defense Mapping Agency.**

- I appreciate Robert Steele saying that commercial SPOT imagery is a major contributor in supporting the DoD. However when I heard Doug Smith state earlier that less than 1% of the imagery DMA uses is from commercial sources, I am impressed by how much greater opportunity DMA and commercial sources have to mutually work together to help the DoD achieve its objectives more cost effectively.
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- SLIDE 1 You will recognize this multispectral SPOT satellite image of Washington D.C. showing details and broad coverage indicative of commercial satellite capabilities.
- In one way it seems like just yesterday that I was addressing you at last year's OSS symposium. However, an incredible amount of things have taken place in the intervening year!. The NIMA legislation and activities; the Dayton Peace Accords, where commercial satellite imagery played a key role; the insertion of some 20,000 U.S. troops in Bosnia and all that that entails; the almost daily use of satellite imagery in the Bosnia theater coming from the Air Force's transportable "Eagle Vision" SPOT receiving station (depicted in SLIDE 2), located in Ramstein, Germany and soon to be relocated to Vicenza, Italy to further enhance its support of the Bosnian operations.

- **SLIDE 3** - For example, this slide is a high resolution panchromatic SPOT satellite image of the Dubrovnik airport whose hilly terrain was involved with the unfortunate crash of Secretary of Commerce Ron Brown's aircraft. Since that crash, the Secretary of Defense has asked that Air Force pilots have terrain data of all airports into which they fly. Terrain data of airport approaches is a perfect example of one of SPOT's commercial capabilities.
- **SLIDE 4** - This next slide is a digital elevation model of Sarajevo showing the mountains in the background on which is super imposed an anti-aircraft threat dome.
- If that was not enough, the multiple recent actions in Iraq have more than validated the need for timely, up-to-date, readily available, unclassified intelligence and imagery such as depicted in this **SLIDE 5** of a smart bomb approaching Baghdad asking "*Excuse me, please direct me to the residence of Saddam Hussein*" and the people on the street commenting to one another, "*Oh, it's one of those smart bombs*"!
- It is an unfortunate reality of today's geo-political environment that the elusiveness of peace is a little like pressing on a balloon. When you make an impression the balloon expands in another area and when you let go the impression disappears, or as has been said: "War is like love, it always finds a way".

- A perfect example of the above are two of my favorite slides taken in early 1991 over Baghdad. (SLIDES 6 and 7) One shows Baghdad with bridges, the other Baghdad without bridges. I suppose today that both these bridges are back up and fully functional.
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- Today's feature topic is "Military and Coalition Intelligence". While this is a hot topic for today in Bosnia and has been in the headlines of the world's newspapers this week regarding Iraq, a classic example of how important this is were the D-Day preparations and operations of the Normandy invasion. This slide (SLIDE 8) is a recently taken satellite image of Normandy with the various coalition invasion beaches indicated.
- (For those of you who may be interested in a poster of this, a small quantity will be available in the SPOT Image booth after this session.) In the context of Normandy 50 years ago and in the context of Bosnia today, the important criteria for the troops in the field to use imagery include:
  - readily available;
  - unclassified and able to be shared with coalition forces;
  - unclassified and able to be taken into the field without undue concern for enemy capture;
  - combination of resolution and field of view

These are all good examples of where commercial imagery may be the best choice and highly classified national imagery not available.

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- Monday's feature topic was "Economic and Financial Intelligence" and Tuesday's was "Transnational and Domestic Law Enforcement Intelligence". In reviewing the agendas for all three days, I was struck by how international these subjects are. For example, there have been presenters and award winners not only from the U.S. but from the U.K.; from France; from Sweden; from Australia and from Canada as well.
  - I am not sure if it is coincidence or not, but the five countries I just mentioned are probably the world's five leading countries, in addition to the U.S., that are strongly involved with commercial remote sensing. In the U.K. with the National Remote Sensing Centre at Farnborough; in France with the SPOT and HELIOS programs; in Sweden with Satellitbild and the Kiruna receiving station complex; in Australia with ACRES and in Canada with Radarsat and the Gatineau and Prince Albert receiving stations.
  - SLIDE 9 - Another example of how international this business is, is this slide which depicts SPOT's 18 receiving stations in nearly 18 different countries covering virtually the entire land mass of the world.
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- We were asked today to talk about a new balance between commercial and national imagery sources, which calls into play Robert Steele's quote "Don't send a spy where a schoolboy can go". Before proceeding further I would like to expose several myths and realities:
- MYTH 1: Commercial imagery is too expensive.
- REALITY 1: During Desert Storm the Defense Mapping Agency procured SPOT imagery for less than \$1 per square mile and currently is procuring for about \$2000 per full scene. Compare this with national imagery satellites costing close to \$2 Billion!
- MYTH 2: The Navy doesn't need satellite imagery because it fights its battles at sea.
- REALITY 2: The Navy has not fought an essentially sea battle in over 50 years since the Battle of Leyte Gulf and that was primarily in coastal waters!
- MYTH 3: The DoD only high resolution imagery.
- REALITY 3: This reminds me of the comment that the DoD only needs fast airplanes. The fact is that the DoD needs and has far more slow helicopters than fast airplanes and that the fastest airplane, the SR71 has unfortunately been the subject of many decommissioning efforts. I suggest to you that the truth is that the DoD needs a range of satellite image products just like it needs a range of airplanes, from helicopters to supersonic jets and many things in between, such as transports, tankers, etc.

- **MYTH 4:** The Defense Mapping Agency has little need for your commercial satellite products.
- **REALITY 4:** During the Desert Storm time period alone, the DMA procured 700,000 square miles of SPOT satellite imagery in addition to substantial Landsat imagery, - and since then the DMA has procured close to another 1,000,000 square miles of SPOT satellite imagery!
- **MYTH 5:** Commercial imagery takes too long to get.
- **REALITY 5:** We have delivered full scene imagery to DoD electronically within 2 hours of ordering. During the Rwanda support efforts several years ago, we received a call Friday afternoon for imagery, some of which was archived in Kiruna, Sweden and some which was archived in Toulouse, France. The imagery was transmitted overnight to the Toulouse-Blagnac airport where C130s from Ramstein touched down Saturday morning en route to delivering imagery to the troops in the field in Rwanda the same day!  
Emergency special operations and international relief operations such as this are all so ideal applications for “Eagle Vision”. Some in the DoD community have asked that approximately a dozen “Eagle Vision” systems be built with a dedicated system available to each CINC.
- **MYTH 6:** With commercial imagery you do not get the necessary ancillary information.
- **REALITY 6:** SPOT provides a full suite of ancillary ephemeris data with each scene.

- **MYTH 11:** The new high resolution commercial systems will hurt your sales.
- **REALITY 11:** It is a myth that they will hurt SPOT's 5-meter, 10-meter and 20-meter resolution sales. The fact is that they should help a great deal by further promoting and developing the marketplace; and causing appreciation of the GOOD VALUE of SPOT imagery combining high resolution, broad field of view, multi-spectral and stereo coverage!

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- Whereas in the past many nations felt it was important to have commercial airlines, it seems more and more that nations of the world feel it is important to have commercial remote sensing programs.
  - Generals, Admirals, Kings and Princes since the beginning of time have understood the "fog of war". It has been said that "In the land of the blind, the one-eyed man is King".
  - That imbalance has been changed forever following the Gulf War with its never before seen usage of commercial technologies, such as commercial GPS, commercial satellite communications and commercial satellite imagery. It has also been said that maps are lies, imagery is truth. This next slide (SLIDE 10), depicts a Hagar cartoon reflecting that, where it shows Hagar and his friend knee deep in water and Hagar stating "*When you made this map why didn't you indicate this area was water?*", whereupon Hagar's friend answered "*I ran out of blue crayons!*"



- **MYTH 7: You cannot depend on commercial imagery.**
- **REALITY 7: All six sensors on all three SPOT satellites launched since 1986 are in orbit and operating. A 4<sup>th</sup> satellite is built and ready for launch and a 5<sup>th</sup> and 6<sup>th</sup> satellite have been funded to be launched early in the next decade. Additionally there are three commercial radar satellites in orbit from Europe and from Canada; and a host of new commercial satellite planned by Space Imaging, EarthWatch, OrbImage, Resource21 and others.**
- **MYTH 8: SPOT stereo pairs require 30 days for acquisition.**
- **REALITY 8: SPOT stereo pairs can be gathered within the same day by using multiple SPOT satellites.**
- **MYTH 9: Commercial imagery is available to the enemy.**
- **REALITY 9: I will not speak for other commercial companies, but during the Gulf War SPOT strictly adhered to the embargo against Iraq and we went one step further, receiving considerable criticism, by also not making imagery available to the media from whence we felt it could have gotten into Saddam Hussein's hands.**
- **MYTH 10: Commercial imagery is useful in identifying specific details of a crime.**
- **REALITY 10: Commercial imagery cannot pick up burglars entering houses; robbers entering banks; whether a particular car was in a particular driveway at a particular time; or whether a car's license plate has expired!**

- Because of the higher resolution, most military applications choose a panchromatic version of SPOT imagery. For those of you who may be interested in multispectral SPOT, in addition to the earlier slide showing a multispectral image of Washington D.C., this final slide (SLIDE 11) depicts multispectral SPOT.
- Thank you ladies and gentlemen.

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