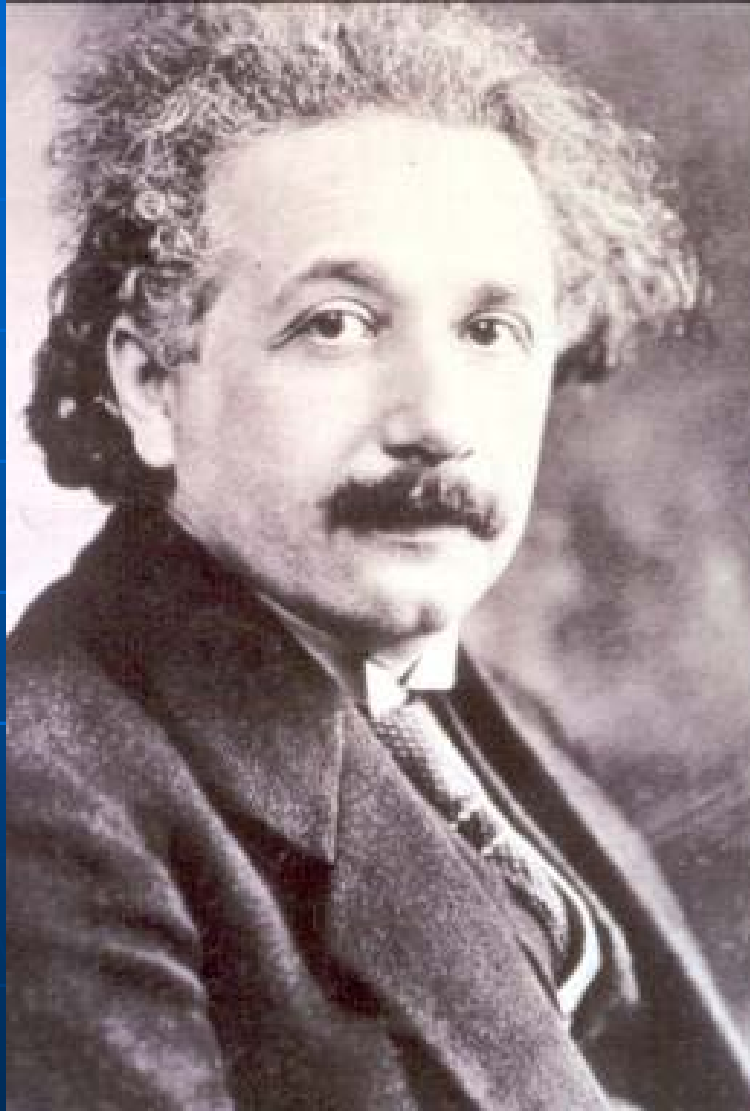# Enhancing Peace Operations
With Modern Technology

Dr. Walter Dorn, **Royal Military College of Canada**
Challenges Forum, 15 February 2013

"**Concern for man himself and his fate [humanity and its fate] should be the chief interest of all technical endeavors. Never forget this in the midst of your diagrams and equations.**"

– Albert Einstein

UN Peace Operations

Concern of international community for humanity

- Save lives and prevent suffering
- UN: Collective eyes and ears, Legs and arms

"The League of Nations ... should be the eye of the nations to keep watch upon the common interest, an eye that does not slumber, an eye that is everywhere watchful and attentive."

Woodrow Wilson, Paris, 1919

Peacekeeping

- The Human Eye … sometimes aided by binoculars

Monitoring Mandates

- Cease-fires

- Peace agreements

- Protected areas and persons (POC)

- Elections

- Human rights

- Sanctions

- Armed groups and spoilers (early warning)

- Resource exploitation

- Safety & security of UN personnel (dilemma)

"A MONITORING GAP"

Problems Of Unaided Monitoring

Limited capabilities ...

- over large areas

- at night

- for underground detection

- in remote/difficult terrain

- information recording, analyzing, sharing
  and storage

Monitoring Technology

- Increases *range* and *accuracy* of observation

- Permits *continuous* monitoring

- Increases *effectiveness* (including *cost-effectiveness* in some cases)

- Decreases *intrusiveness*

- Enhances *safety* of staff in field
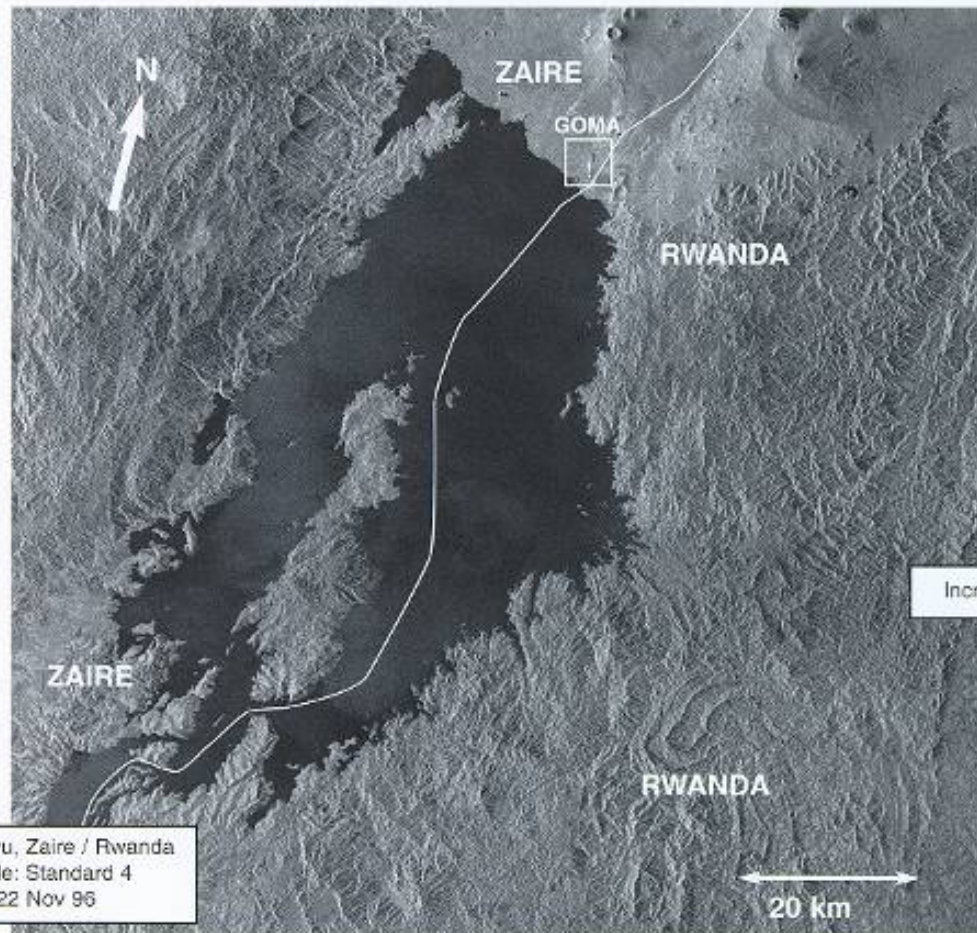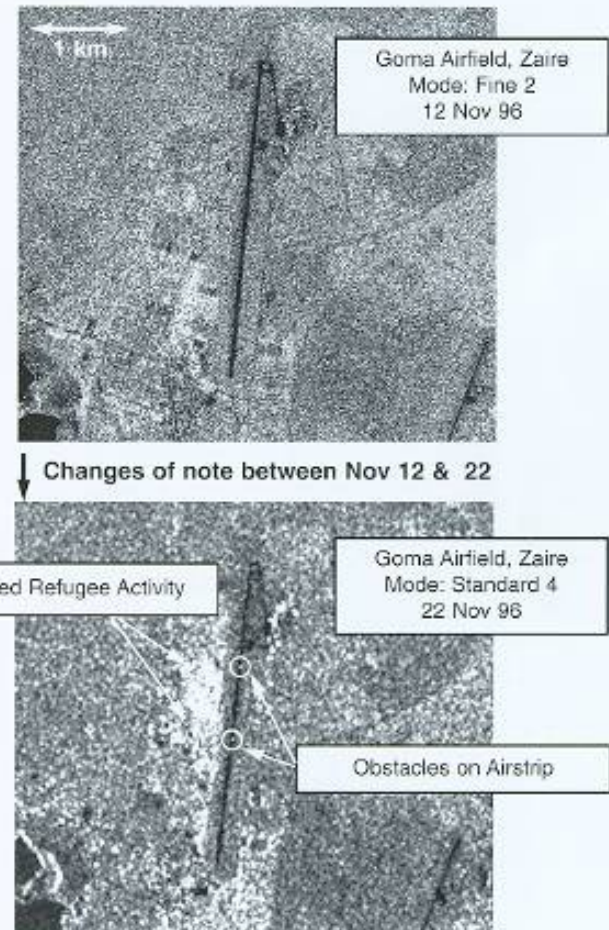
- Provides *recordings/evidence*

Aerial Monitoring

Satellite Reconnaissance

UN

Observation Post (OP)

Ground Penetrating Radar (GPR)

Video Camera

Acoustic Sensor

Ground Surveillance Radar (GSR)

Seismic Sensors

Check Point

IR Break-Beam

Taut-Wire Fence

Pressure Transducer

UN

Rapid Response Mechanism
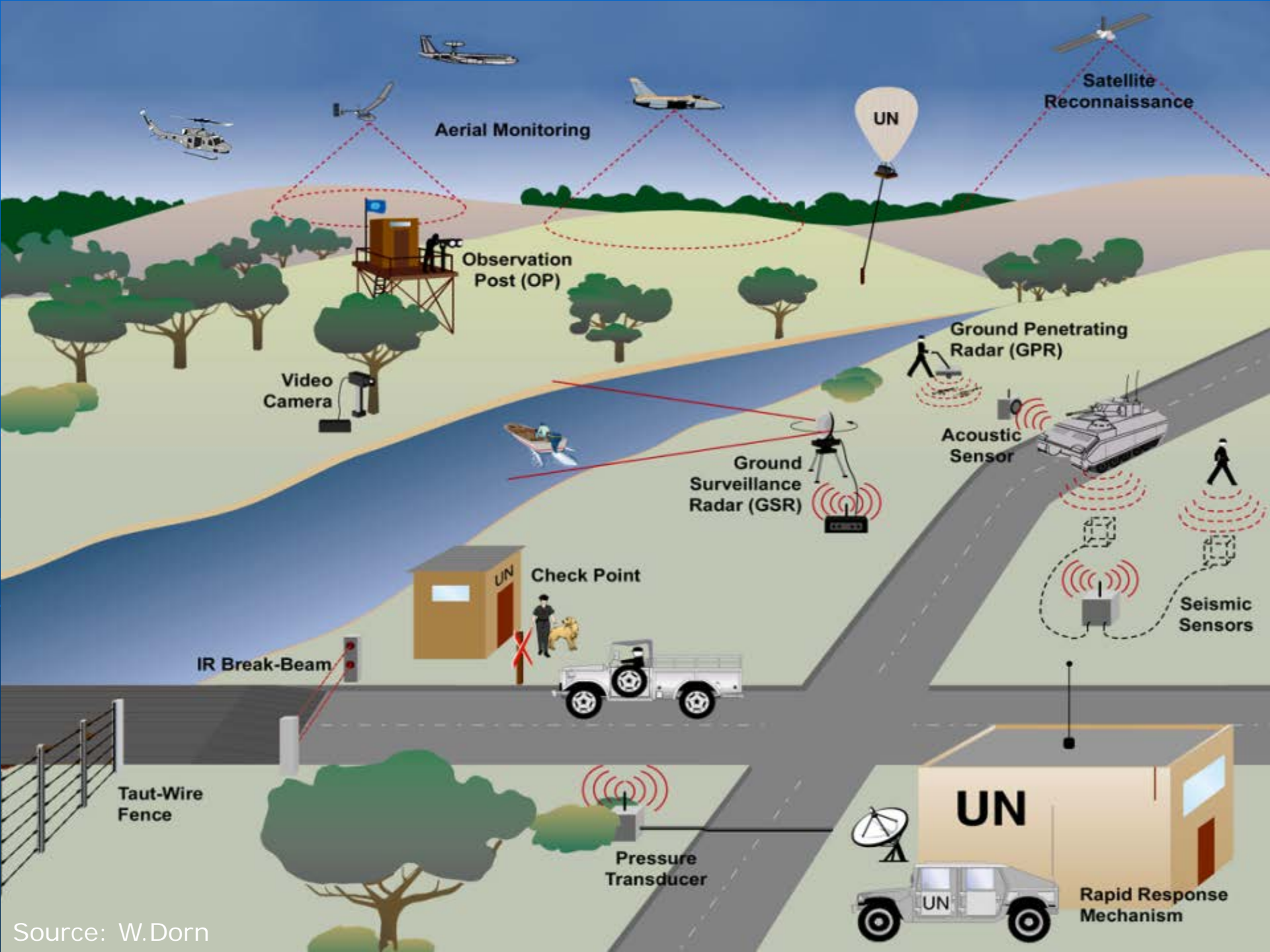
Source: W.Dorn

Satellite imagery

RADARSAT-1

HUMANITARIAN ASSISTANCE

N

ZAIRE

GOMA

RWANDA

ZAIRE

RWANDA

Lake Kivu, Zaire / Rwanda
Mode: Standard 4
22 Nov 96

20 km

1 km

Goma Airfield, Zaire
Mode: Fine 2
12 Nov 96

Changes of note between Nov 12 & 22

Increased Refugee Activity

Goma Airfield, Zaire
Mode: Standard 4
22 Nov 96

Obstacles on Airstrip

© Canadian Space Agency / Agence spatiale canadienne 1996. Data received by the Canada Centre for Remote Sensing. Processed and distributed by RADARSAT International.
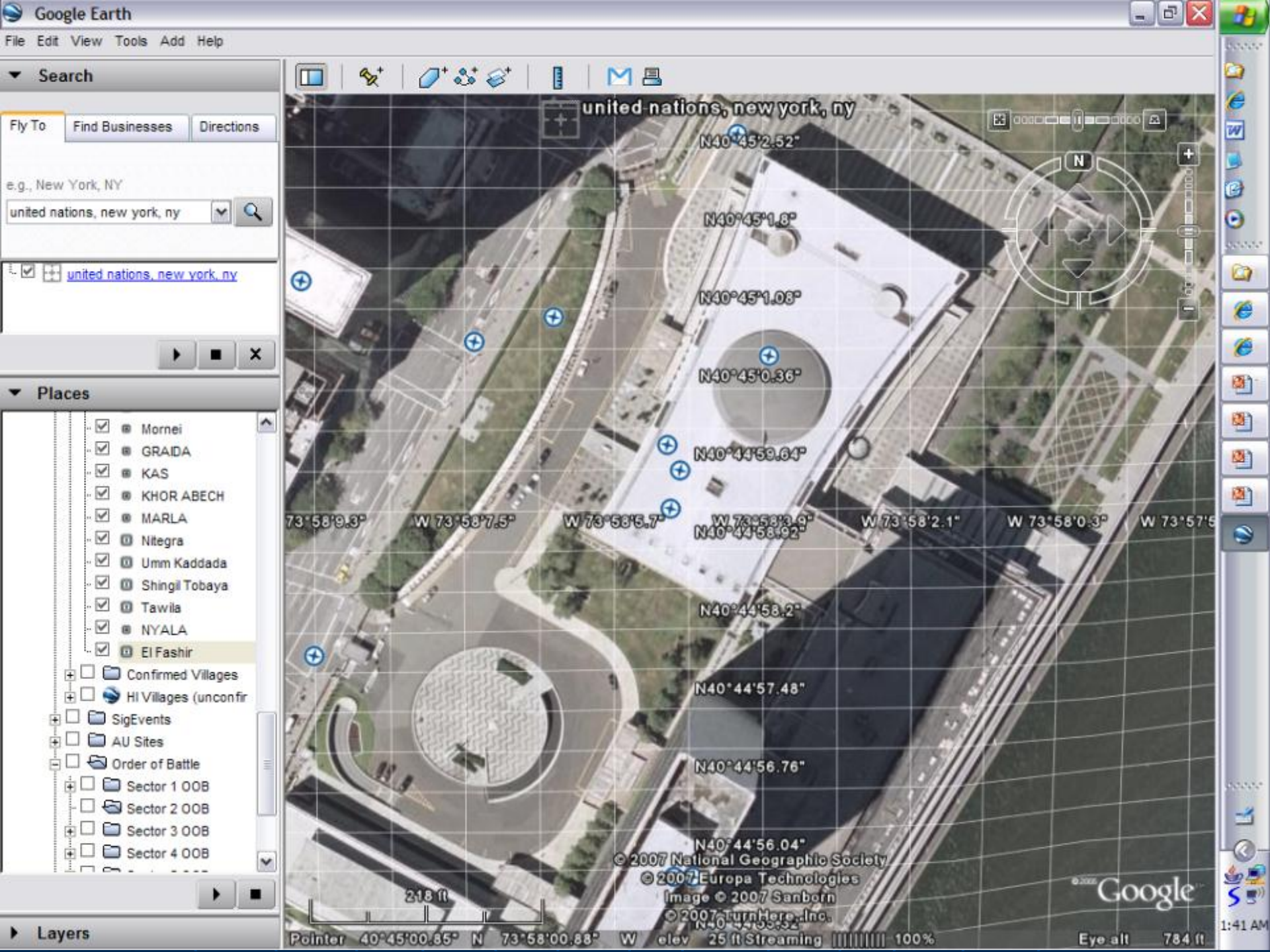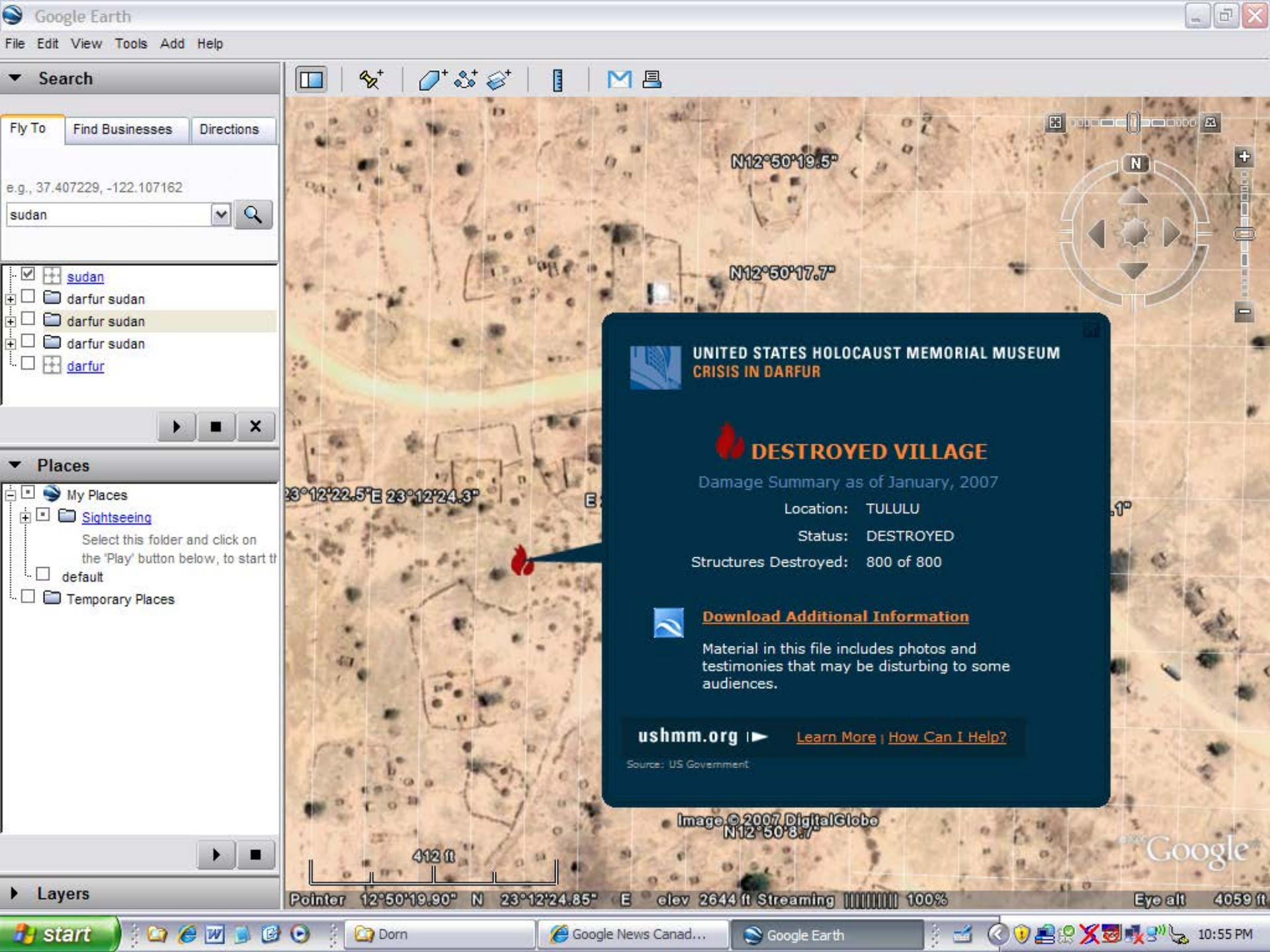
CENTRAL AFRICA - REFUGEE ACTIVITY
November 12 & 22, 1996   Fine 2 & Standard 4

Google Earth

File   Edit   View   Tools   Add   Help

Search

Fly To   Find Businesses   Directions

e.g., New York, NY

united nations, new york, ny

☑ united nations, new york, ny

Places

☑ ⊙ Mornei
☑ ⊙ GRAIDA
☑ ⊙ KAS
☑ ⊙ KHOR ABECH
☑ ⊙ MARLA
☑ ⊙ Nitegra
☑ ⊙ Umm Kaddada
☑ ⊙ Shingil Tobaya
☑ ⊙ Tawila
☑ ⊙ NYALA
☑ ⊙ El Fashir
☐ 📁 Confirmed Villages
☐ 🌐 HI Villages (unconfir
☐ 📁 SigEvents
☐ 📁 AU Sites
☐ 📂 Order of Battle
☐ 📁 Sector 1 OOB
☐ 📁 Sector 2 OOB
☐ 📁 Sector 3 OOB
☐ 📁 Sector 4 OOB

Layers

united nations, new york, ny

N40°45'2.52"
N40°45'1.8"
N40°45'1.08"
N40°45'0.36"
N40°44'59.64"
73°58'9.3"   W 73°58'7.5"   W 73°58'5.7"   W 73°58'3.9"   W 73°58'2.1"   W 73°58'0.3"   W 73°57'5
N40°44'58.92"
N40°44'58.2"
N40°44'57.48"
N40°44'56.76"
N40°44'56.04"

© 2007 National Geographic Society
© 2007 Europa Technologies
Image © 2007 Sanborn
© 2007 TurnHere, Inc.

Google

218 ft

Pointer   40°45'00.85" N   73°58'00.88" W   elev   25 ft   Streaming |||||||||| 100%   Eye alt   784 ft

1:41 AM

Satellite Sentinel Project

APPARENT DESTRUCTION OF COLLECTION MANIFOLD, HEGLIG OILFIELD | HEGLIG, SOUTH KORDOFAN, SUDAN

15 APRIL 2012 | FIG. 1B

UAVs

Israeli

American

Japanese

Canadian

Australian

Hand launched

EUFOR UAV Support to MONUC (2006)

B-Hunter

- Belgian contribution

  Bosnia (2005) 400 flight hrs

- DRC (2006) 300 flight hrs

Arms race

- President Kabila vs Vice-President Bemba

  - Tanks shipped by rail

  - Dugout canoes filled with small arms cross Congo River

Kinshasa, 20-22 August 2006

UAV Mission in Direct Support of combined EUFOR/MONUC intervention during fights in Kinshasa, 21th August 2006

Real Time Monitoring of area with Heli destroyed by fighting parties

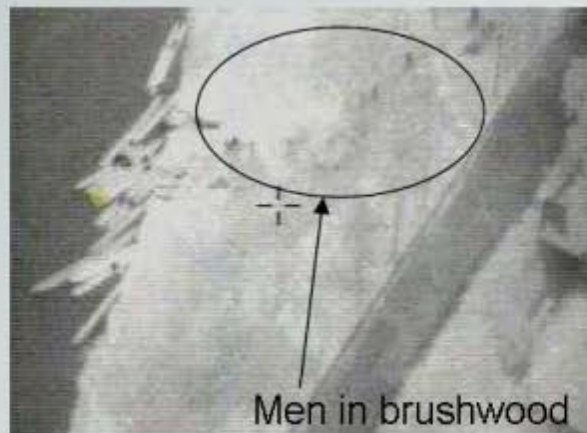Real Time Monitoring of EUFOR/UN Unit taking position between fighting parties

Real Time Monitoring of combats in town

Direct Support to combined EUPOL & UPI Congolese Police operations
KINSHASA, 2006

Men in brushwood

General Support Mission Monitoring parties activities
Detection of possible smuggling activities
KINSHASA, 2006

General Support Mission Monitoring parties activities after cease-fire agreement
Recurrent verification of respective positions
KINSHASA, 2006

Long Endurance Day & Night persistent & discreet observation with real time transfer of information

UAV experience in DRC

Very useful imagery

Operational problems
- 1 shot down
- 1 crashed causing fatalities on ground
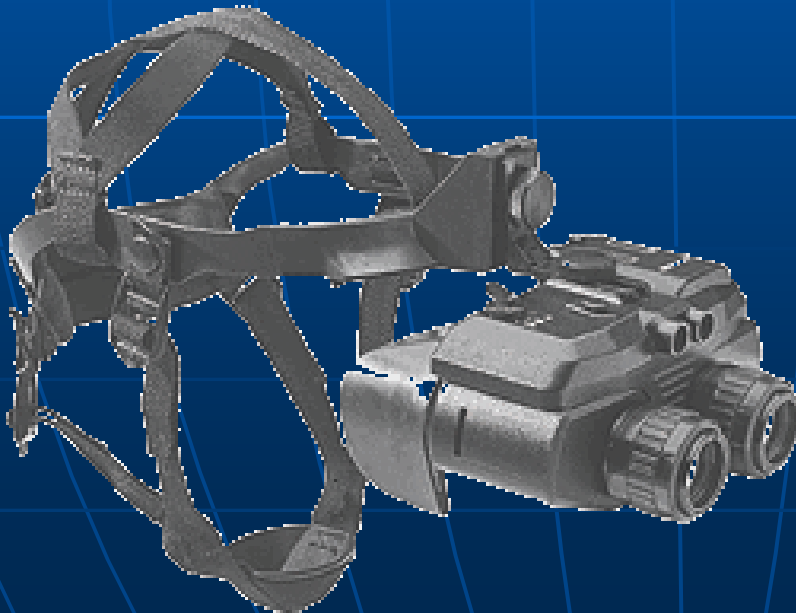- Info-sharing EUFOR/UN

Political problems
- Host-state info demands

UAVs

- Unmanned Aerial **Imaging** Systems (UAIS)
- DRC: 2007-2009
- EOI: January 2013
- Political leadership
- Modest system
- Manage expectations
- Recommendations: different types

Night Vision

Thermal Imaging

www.imaging1.com

Radars

Aerial

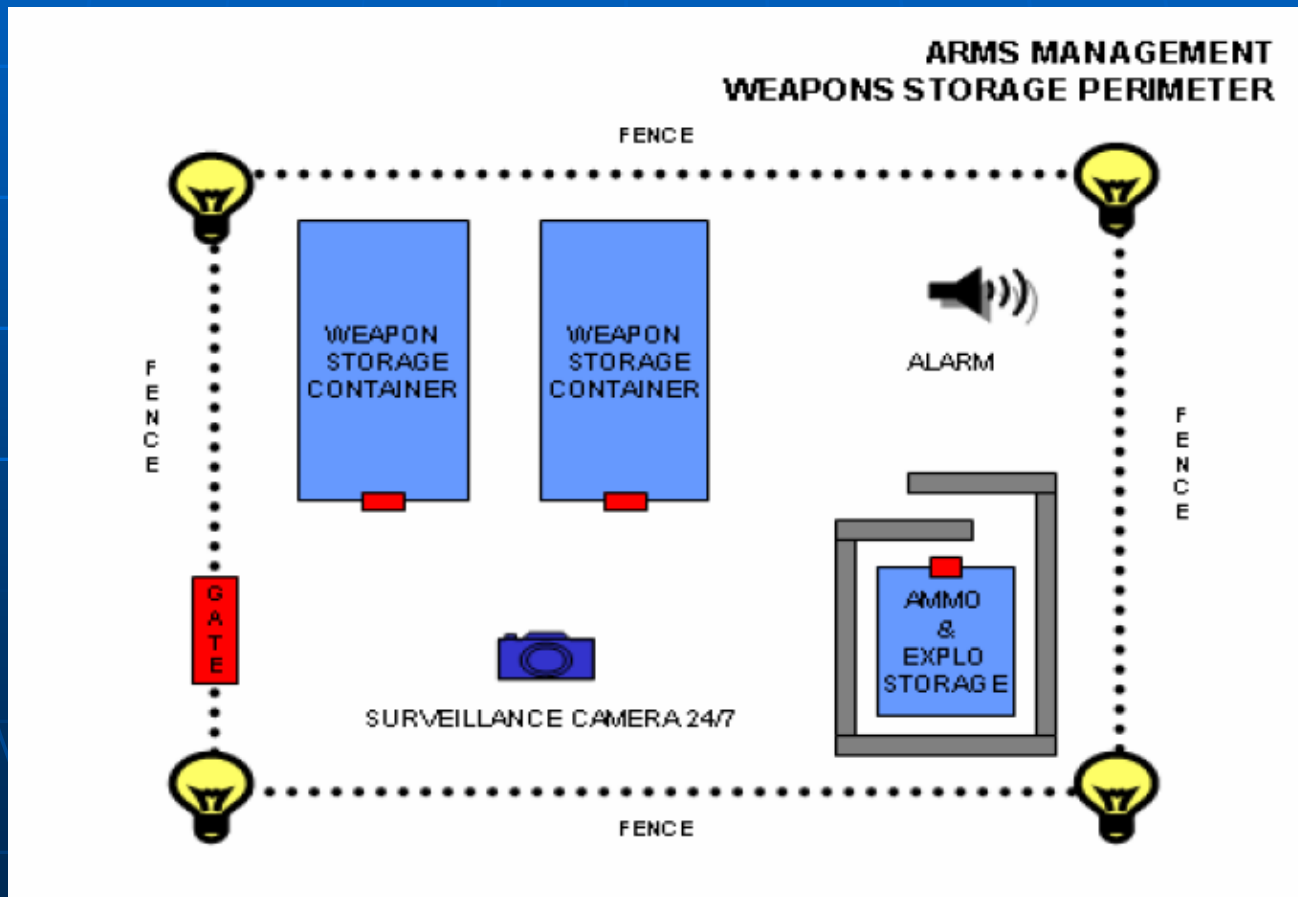
Ground

Underground

Airborne

Sea-based

Ground Sensors

- Acoustic and seismic

- Sinai Field Mission (SFM)

- Commercial systems

(Source: www.cmc.sandia.gov)

Video Cameras

2006 Nepal Comprehensive Peace Agreement

Electronic Eyes on the Green Line (UNFICYP)

Cost comparison:
10x cheaper (first year),
100x (subsequent)

Multisensor Systems

- Reconnaissance vehicles
  - Mobile
  - Extendible mast
  - GSR
  - Low light TV
  - IR sensors
  - Laser range finder

Canadian Coyotes in Ethiopia-Eritrea (UNMEE)

CF Combat Camera, ISD01-0030a, Bernier, 4, 2001

- Secure checkpoints
- Temporary Security Zone
- Night observation

Carlog

www.e-drivetech.com

Keeping Watch

Conclusions

1. No technological fix … but technology can be of immense value in monitoring, preventing and mitigating conflict.

2. Technical monitoring can increase the safety and security of peacekeepers as well as the effectiveness of the mission.

3. UN lacks the equipment, resources, preparation/training needed for effective and efficient use of modern monitoring technology

- *some* monitoring technologies in *some* missions but *ad hoc* and *unsystematic*
  - radars
  - NVE (Gen 2+)
- no thermal imagers, seismic or acoustic ground sensors
- platforms: recce vehicles and aircraft
- absence of policies, doctrine, SOPs and training materials
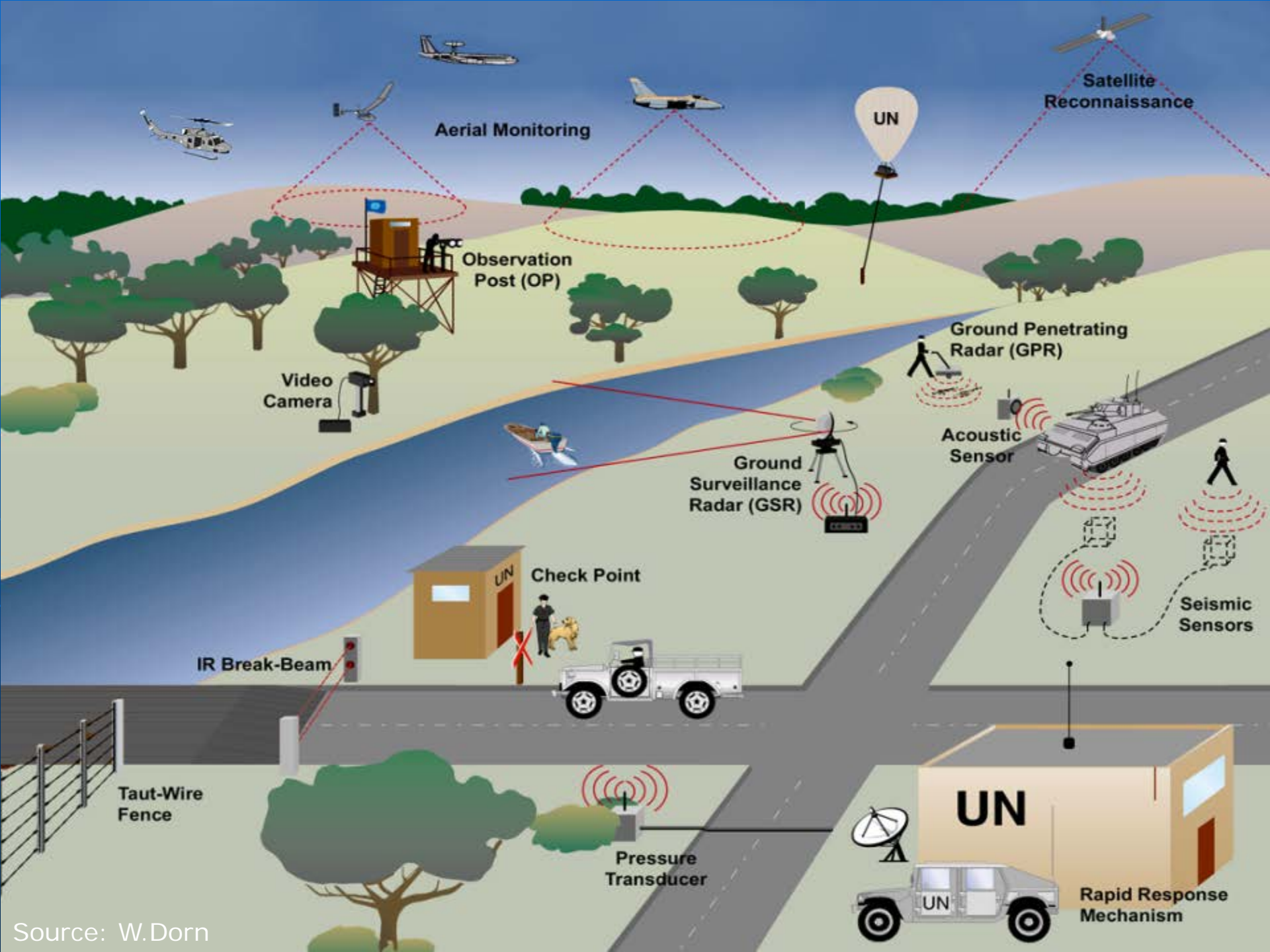- need to re-engage capable contributors

4. UN is capable of incorporating advanced technologies

- Communications and information technology
- Carlog
- GIS progress
  - Commercial satellite imagery
- Aerial recce in DRC

Monitoring technologies not yet "tools of the trade," but they can and should be.

IF THIS TECHNOLOGY-AIDED

PRESENTATION DIDN'T WORK …

FORGET EVERYTHING I SAID

Source: W.Dorn