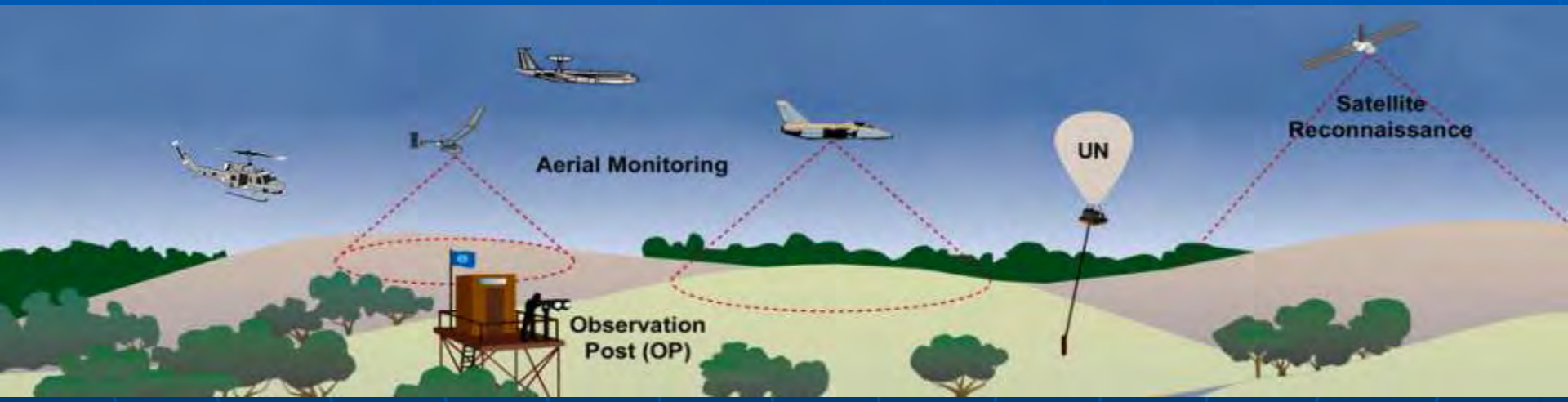
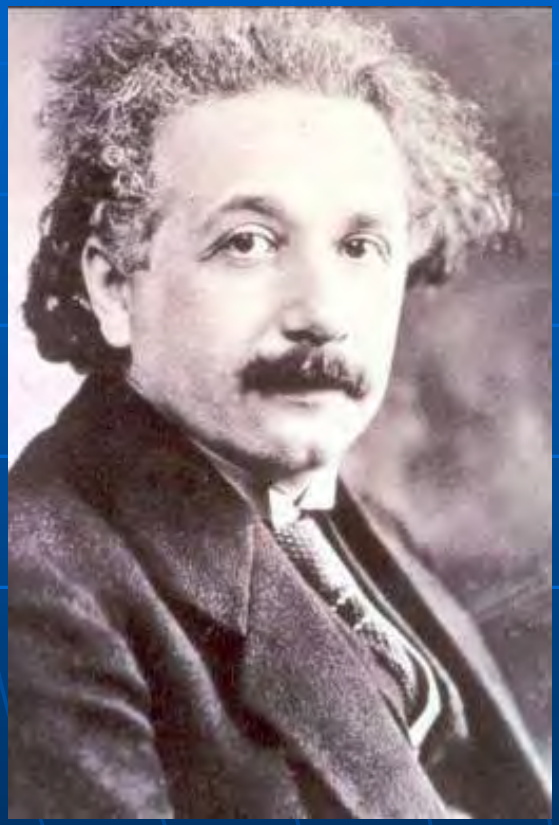
EYES IN THE SKY :

From Manned to Unmanned Aerial Reconnaissance in UN Peace Operations



Dr. Walter Dorn

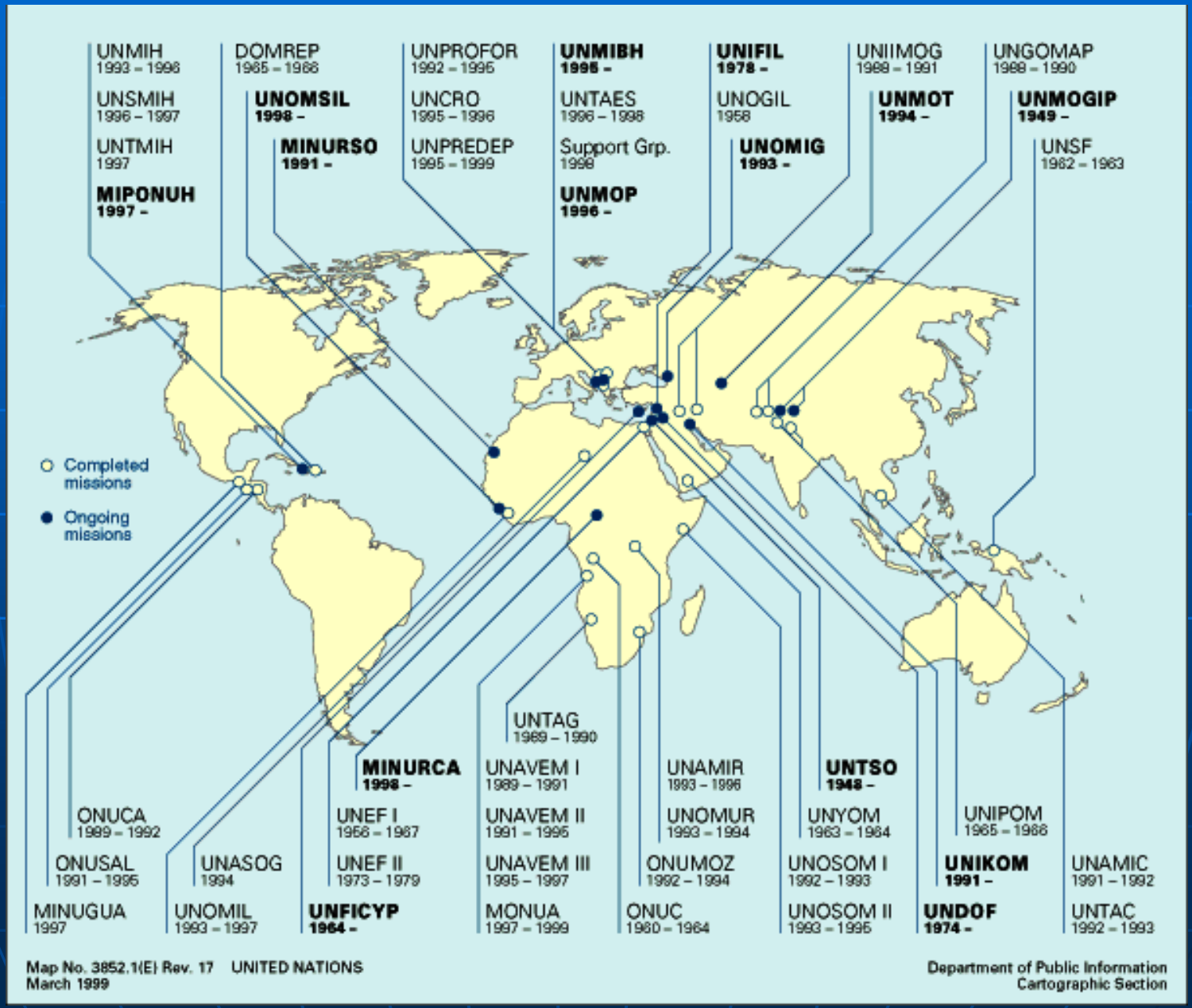
Unmanned Aerial Systems (UAS) Summit, Ottawa, 15 December 2011



“Concern for man himself and his fate
[humanity itself 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

Peacekeeping (First 50 Years)



UN Peacekeepers (Military & Police,1991-)

UN Peacekeeping Today

Monitoring tasks

- Cease-fires
- Peace agreements
- Armed groups and spoilers
- Protected areas and persons
- Humanitarian conditions & relief
- Elections and human rights
- Sanctions and no fly-zones
- Resource exploitation
- Safety & security of UN personnel

"A MONITORING GAP"

Traditional Tools

The human eye ...
sometimes aided by binoculars

Ground-based

Observation Tower

Problems of Unaided Monitoring

Limited capabilities …

- over large areas
- at night
- for underground detection
- in remote/difficult terrain
- information recording, analyzing, sharing and storage

Benefits of Monitoring Technologies

- Increases *range* and *accuracy* of observation
- Permits *continuous* monitoring
- Increases *effectiveness*
  - *cost-effectiveness* in some cases
- Decreases *intrusiveness*
- Enhances *safety* of staff in field
- Provides *recordings/evidence*

Cooperative Monitoring Technologies

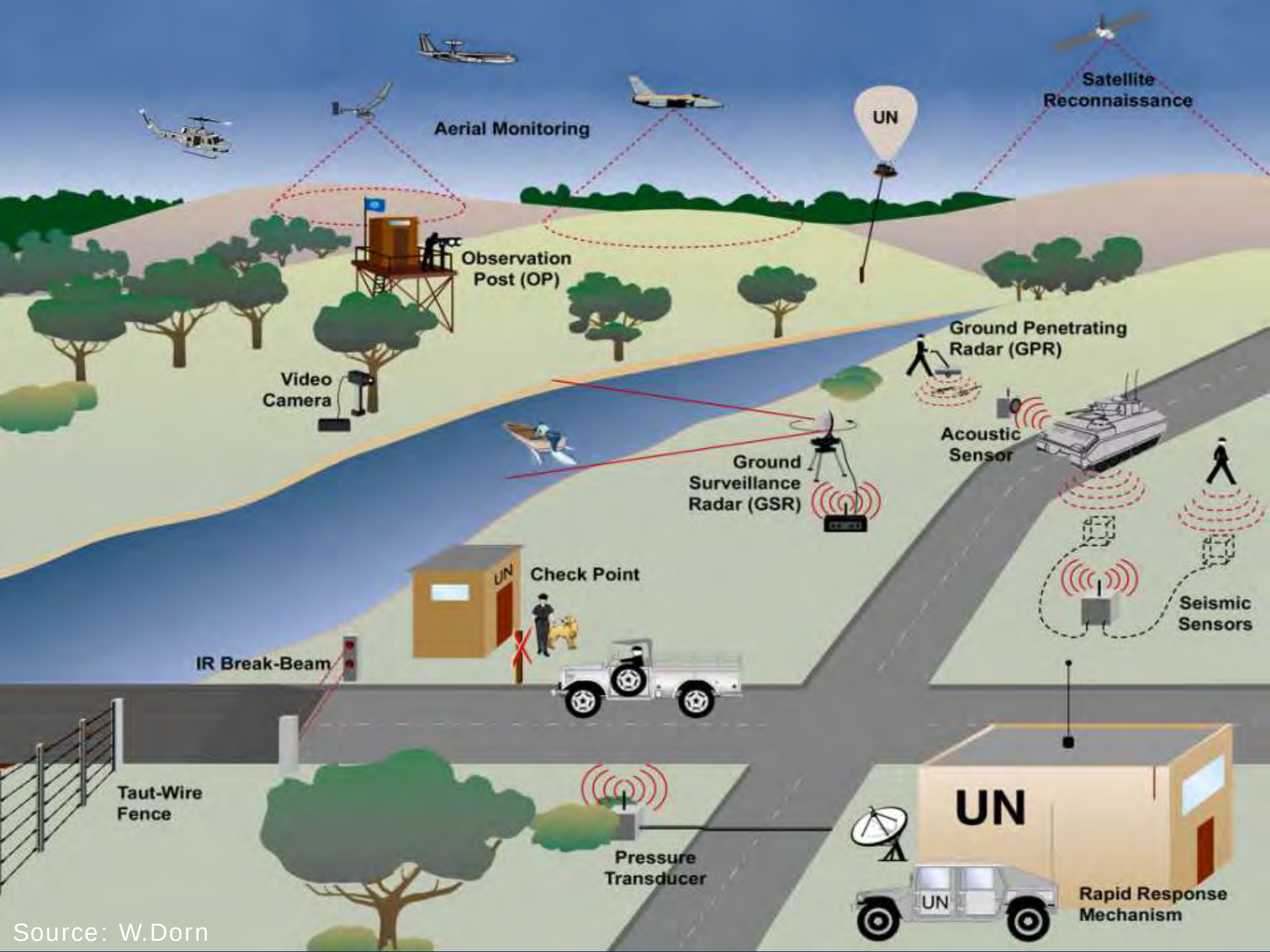
"Tools of the Trade?" (independent commissioned report)

KEEPING WATCH

Monitoring, Technology & Innovation in UN Peace Operations

A. Walter Dorn

Foreword by LGen The Hon Roméo A. Dallaire (Ret'd)

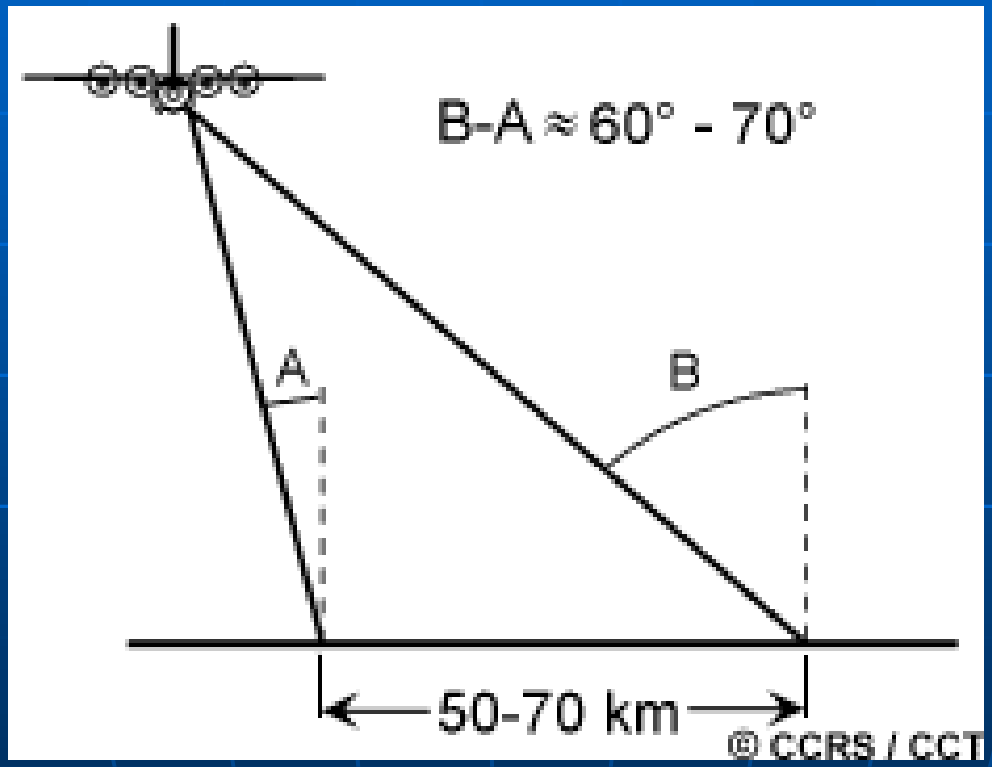


Source: W.Dorn

Air vs Ground Observation

- Bird's eye view
  - Longer, wider, less solid obstacles, adjustable altitude/visibility
  - But clouds, fog, smoke or smog, turbulence
- Faster, more direct
  - Not as close, time on target depends
- Host state control depends

Oblique Viewing



Aerial Observation in UN Missions

Sinai

Cyprus

D.R. Congo

Haiti

Canadian Otters as
Reconnaissance Aircraft
in Sinai (UNEF)

UN Peacekeeping Force in Cyprus

Argentinian Air Unit

Non-announced military briefing at new bunker

Detecting Violations: illegal farming in former minefield

Forward-looking Infrared (FLIR) Pod

Photos by W. Dorn

Mission in Congo

Attack Helicopter

UN Photo # 200146/C. Herwig

MI-24 Attack Helicopter in Liberia

MI-35 Front View

MI-35 in MONUC, No.104 Helicopter Unit of the Indian Air Force, 21 January 2006

URL: http://www.bharat-rakshak.com/IAF/Images/Special/Features/Congo/Photo_2006123102447578.jpg.html

CNDP Rebel with Weapons during Attempted Attack on Goma

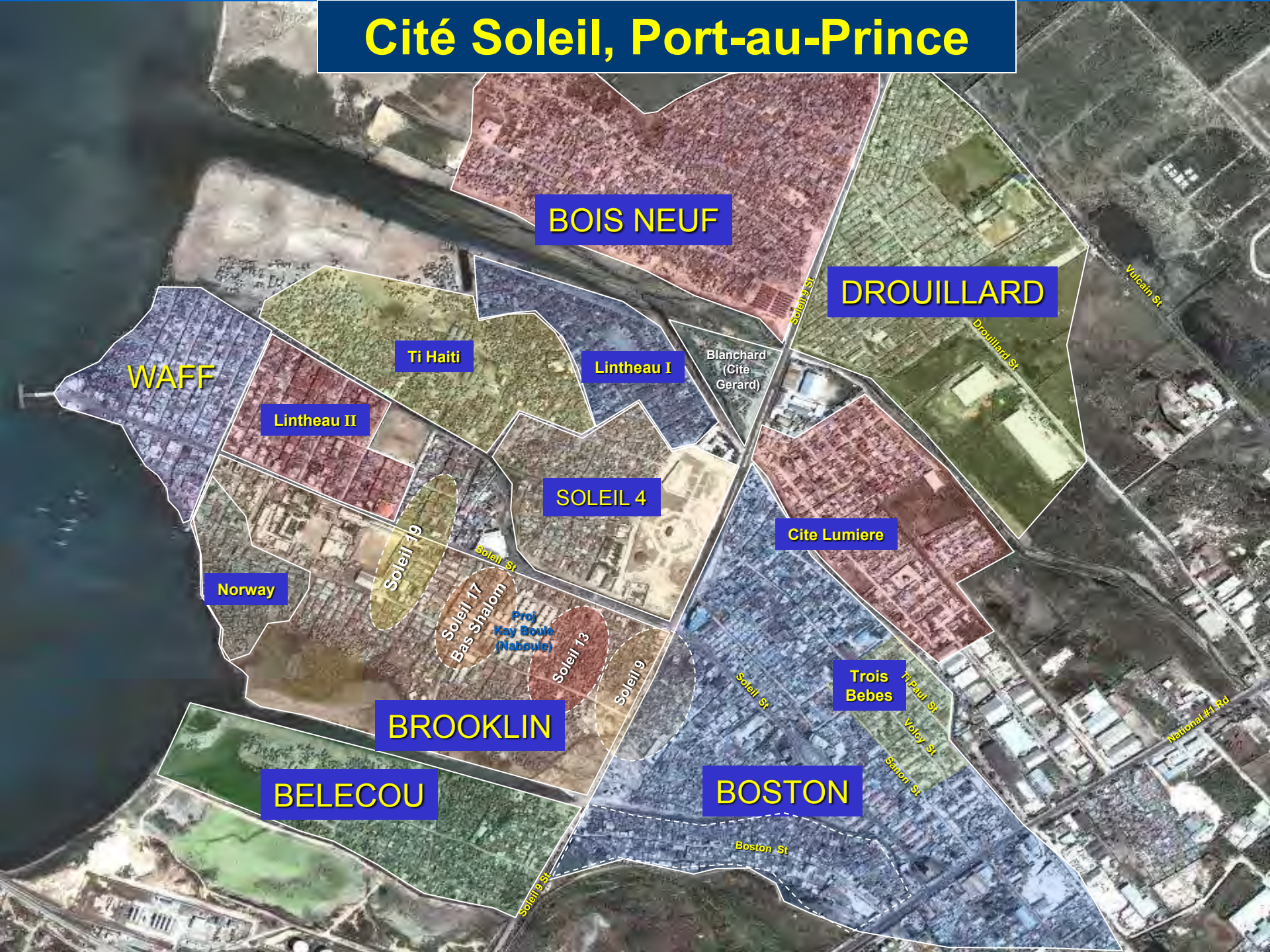
Suspected Rebels and Vehicle (FLIR Freeze Frame)

United Nations Stabilization Mission in Haiti

(MINUSTAH)

Source: NASA, Landsat-5/TM (05/13/1998)

Cité Soleil, Port-au-Prince




VIAS DE ACESSO - 02 FEV 07
1
2
3
4
5
6
7


2,8 m deep
4,8 m


UN
UN

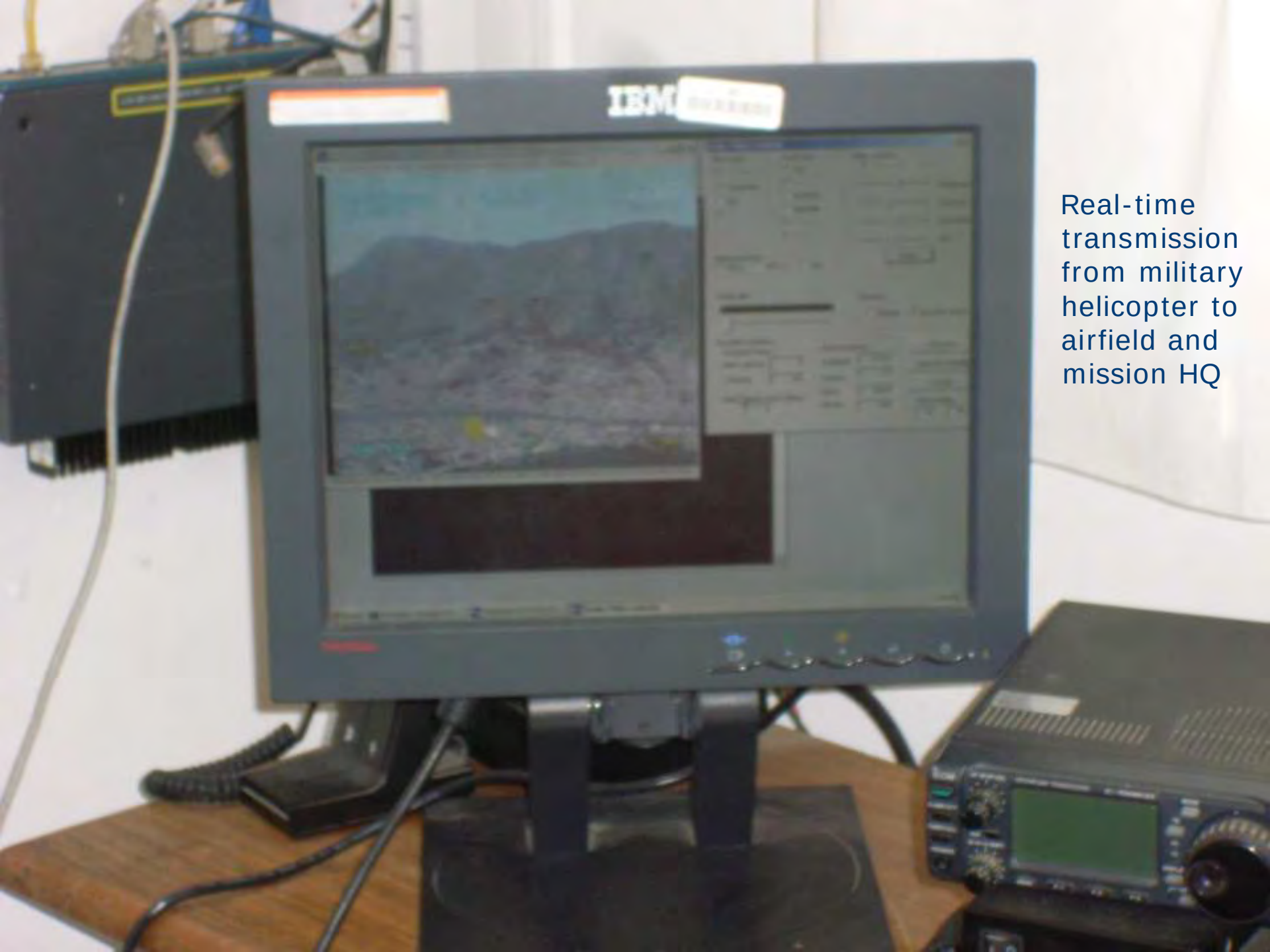
Area of forbiden fire 1st phase

December 2008


CHILEAN AVIATION UNIT
GRUPO DE HELICOPTEROS UH-1H
HIRUSTAR
"FLYING FOR PEACE IN HAITI"


UNITED NATIONS
UN
UNITED NATIONS
12 . 19 . 2008


TED NATIONS
FLIR
SYSTEMS



Real-time transmission from military helicopter to airfield and mission HQ


FUERZA AEREA DE CHILE

12 JUN 2008

12-22-2008

Uruguayan CASA-212 Aviocar for observation, transport, medevac

(Dorn in khaki pants)


A. LOCK48K
215min
TCR 00:50:48.12
REC


Following Aircraft


HH-LLG

Casa-212 Crash (2009)

Unmanned (vs Manned)

- Safety and security
  - Accident or attack
  - Peacekeeper's dilemma
- Night flying
- Smaller, lighter
  - Endurance: range and loitre on station
  - Easier to hide, harder to shoot
  - Launch locations
- Expense
- Personnel location
  - Shift work

Piloting UAVs

EUFOR UAV Support to MONUC (2006)

B-Hunter

- Belgian contribution to EUFOR
- Israel Aircraft Industries
- Bosnia (2005) 400 flight hrs
- DRC (2006) 300 flight hrs

Congolese arms race

- President Kabila vs Vice-President Bemba
- Tanks shipped by rail
- Dugout canoes filled with small arms across 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

EUFOR RD CONGO

Direct Support to combined EUPOL & UPI Congolese Police operations

KINSHASA, 2006

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

2006

Operational problems

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

Political problems

- Host-state info demands

UAV Proliferation

Israeli

American

Australian

Canadian

Japanese

Hand launched

Contracted UAS by UN

Request for Proposal

- 6 UAVs, 2 ground segments (Goma and Bunia)
- 10-12 hrs per day; surge 72+ hrs (crisis)
- Camera: day&night, 2 m at 5 km slant range; growth to SIGINT and SAR
- RVT to forward units - training from contractors
- Budget of $22 million per year for 4-5 years
- 30+ EOIs; 6 bids

Contracted UAS

- Government of DR Congo (GoDRC)
  - Accepted in 2009
  - Questioned missions (MONUSCO)
- Mission doubts UAV feasibility & cost-effectiveness
  - Manned helicopters preferred
- Renewed effort
  - Expression of Interest (2013)

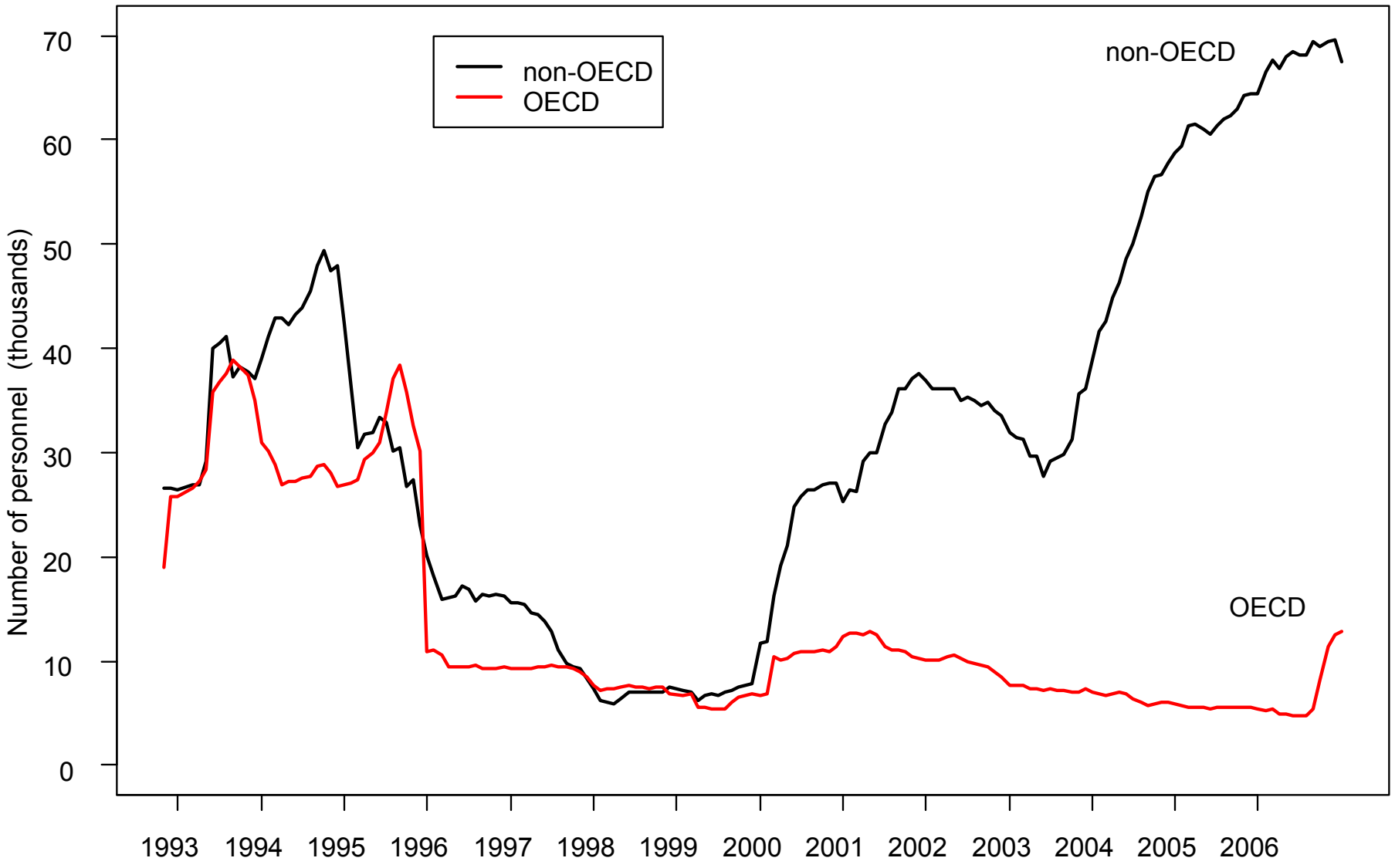
Overview: UN Technological Status

- Aerial imagery
  - No UAVs deployed by UN (yet)
  - Real time video transmission to MINUSTAH Hq
  - MI-35 sensors
- Satellite imagery
  - Not real time – limited operational utility
    - Mapping
    - MacDonald, Dettwiler & Assoc. (MDA)
    - Electro Optical (EO) but Synthetic Aperture Radar (SAR) not used
- Moving from cartography to GIS
- *Some* nations in *some* missions

Common Limitations on High-Tech in UN

- **Reliance on "volunteering" nations**
  - **Ad hoc basis; no permanent arrangements**
  - **Operated by nationals of that country**
  - **When contingent withdraws goes**
- **UN's stockpile effectively non-existent**
- **Contractor arrangements unfulfilled**
- **No resident UN expertise**
  - **UNSCOM; UNMOVIC**
  - **Exception: communications**

Contribution of Uniformed Personnel to PKOs:
OECD and Non-OECD Nations



Dorn, 2007

Special Committee on Peacekeeping

UN Photo/Paulo Filgueiras

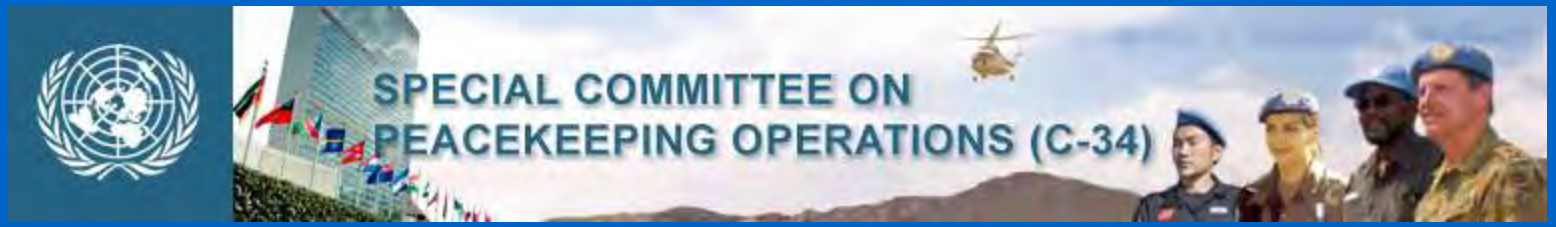
“Tools of the Trade?”

Conclusions

1. No technological fix … but airborne surveillance 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. Technologically advanced nations are needed to provide such force enablers.



45. The Special Committee **welcomes** the study launched by the Secretariat on the use of advanced monitoring and surveillance technologies to tangibly improve operational capabilities, achieve results in the field and promote the safety and security of peacekeeping personnel. Recognizing the urgent need for Peacekeeping Operations to **standardize** the use of advanced technology, particularly in missions operating in dangerous environments or mandated with challenging tasks, the Special Committee requests the Secretariat to develop appropriate **modalities** for the use of advanced monitoring and surveillance technologies with due attention to legal, operational, technical and financial considerations as well as the consent of the countries concerned with regards to their application in the field.

Report of the Special Committee on Peacekeeping, 23 May 2007; UN Doc. A/61/19

42. The Special Committee notes the progress made towards a wider and systemic use of technology in peacekeeping operations. However, the Special Committee believes further progress is required. In this regard, the Special Committee requests the development of a United Nations **policy** on monitoring and surveillance technology, and looks forward to a report on this subject within six months of the issuance of this Committee's findings. The Special Committee believes that due attention should be given to legal, operational, technical and financial considerations and especially the consent of the countries concerned with regard to their application in the field.

2009 Substantive Session (A/63/19)

Challenges and Opportunities

- Political
  - Host state
  - Sharing info
  - Privacy
  - “Shutter control” rules
- Personnel
  - Operators and analysts and users
    - Training
    - Deployment
- Financial/Physical
  - Life cycle: Purchase, Maintenance, Storage

UAVs are not yet
“tools of the trade”
but they can and should be

Canada

- "Key enabler"
  - "Force multipliers"
- Expertise
  - Remote sensing community
  - Peacekeeping experience

Canadian Coyotes in Ethiopia-Eritrea

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

IF THIS TECHNOLOGY-AIDED

PRESENTATION DIDN'T WORK …

FORGET EVERYTHING I SAID