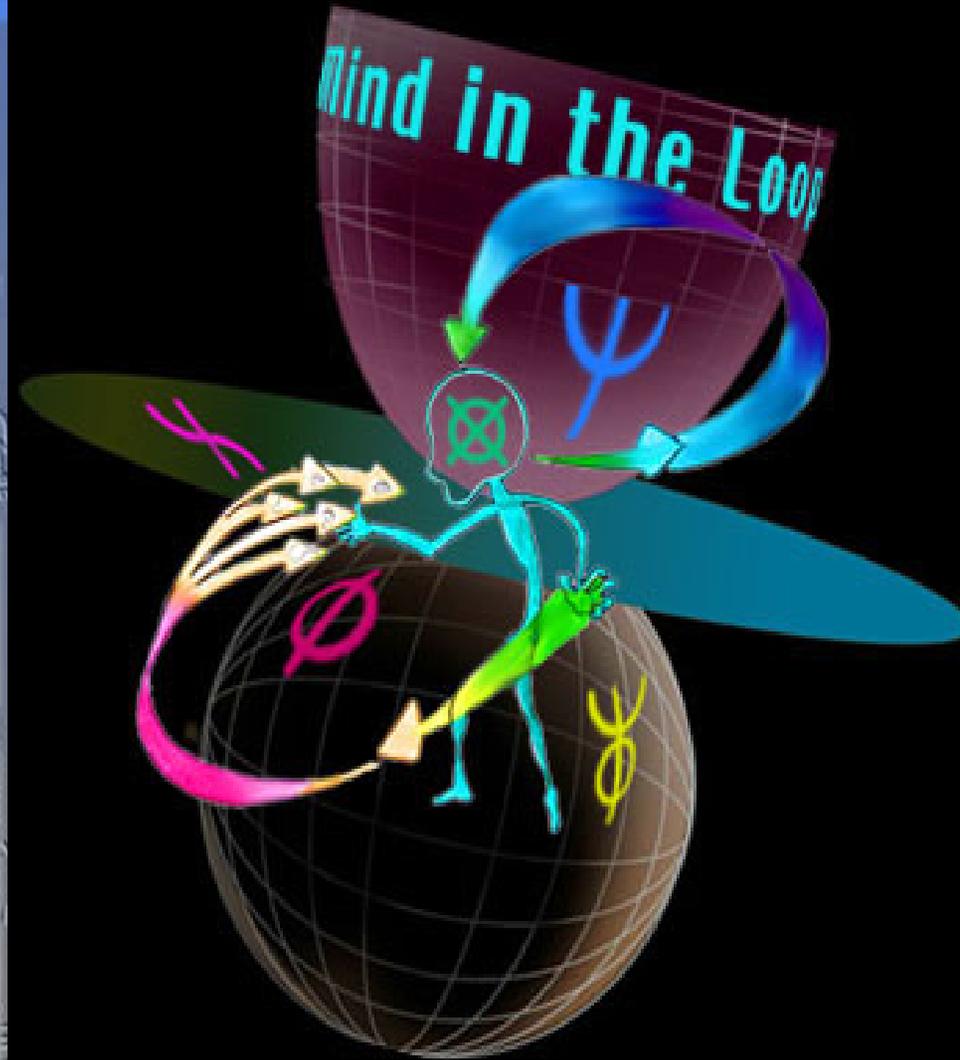


Dave Warner MD PhD

Intelligence on Demand  
in the Communication Age

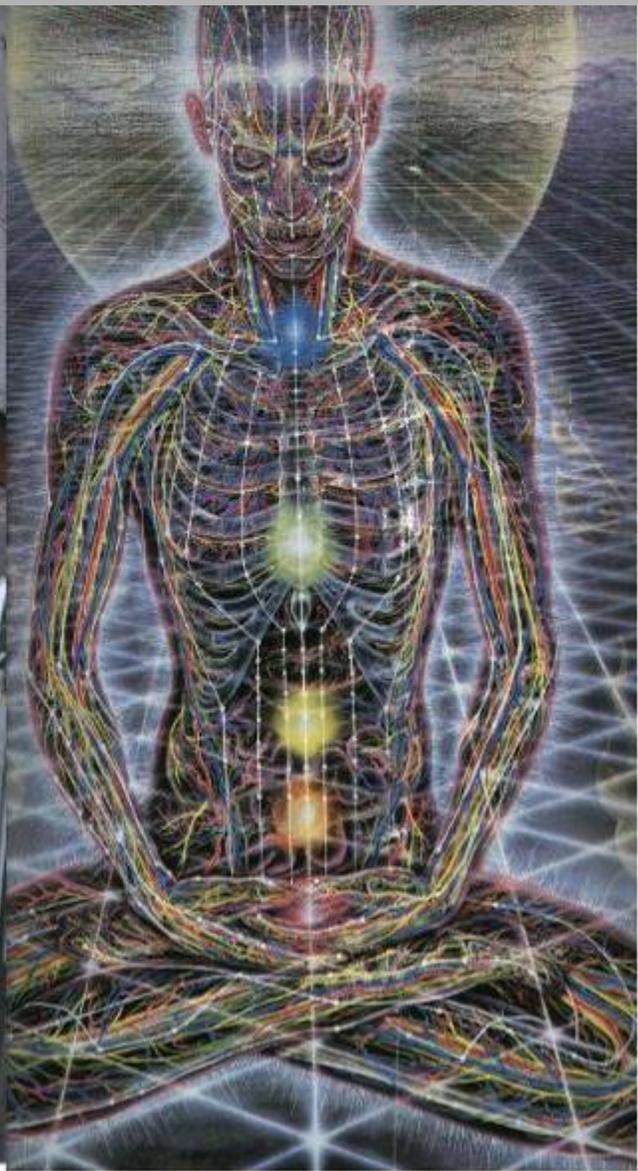
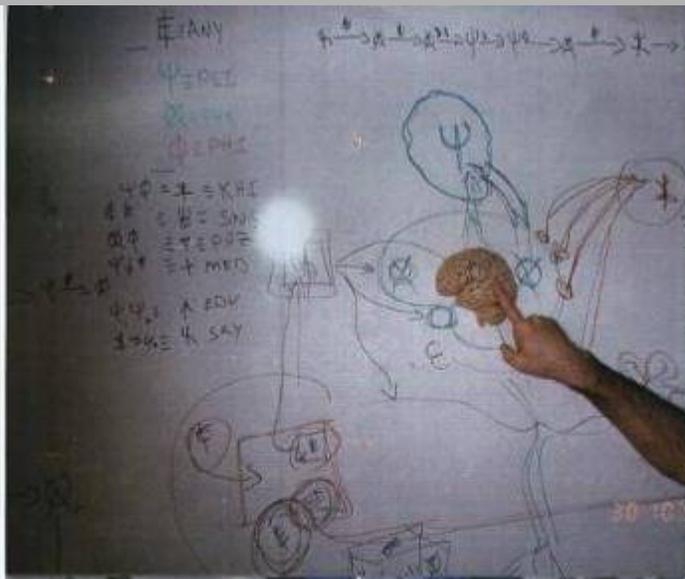
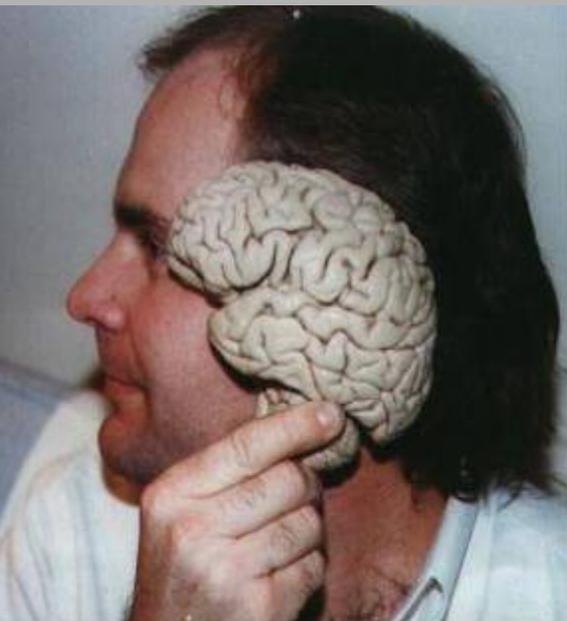


sensor computer render

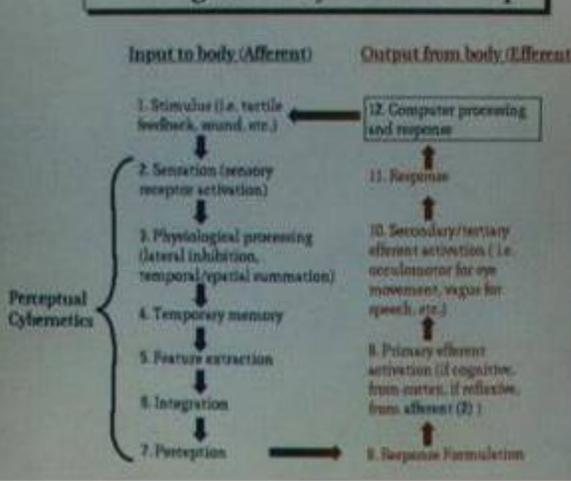


Center for Really Neat Research

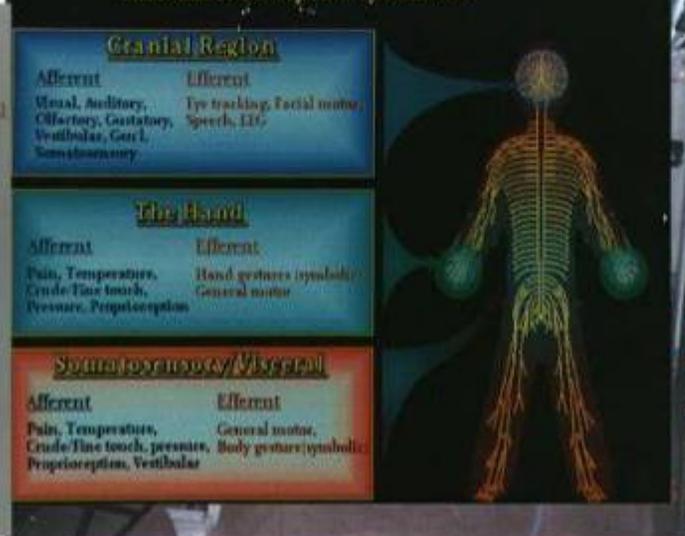
# INTRA-SOMATIC INFRASTRUCTURE



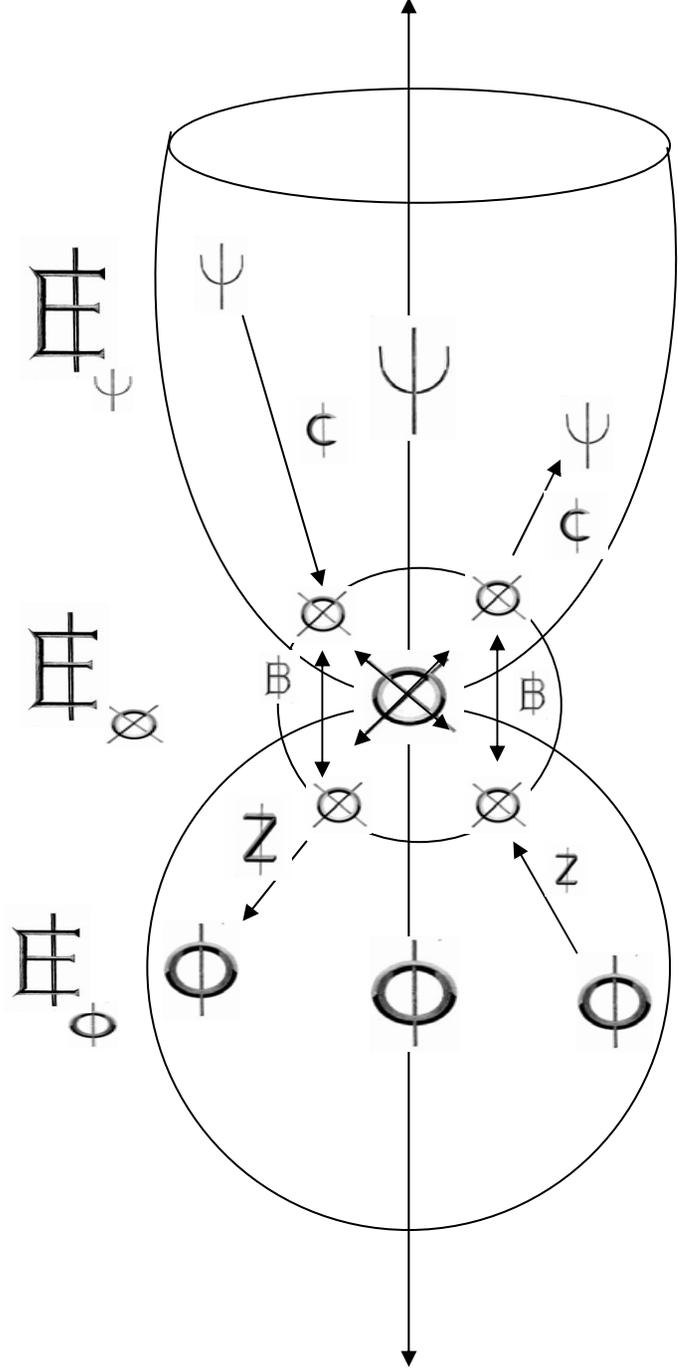
## The Cognitive Cybernetic Loop



## Relevant to Perceptual Cybernetics



# NEURO-COSMOLOGY



$$\psi \xrightarrow{\# \text{ c}} \psi$$

$$\otimes \xrightarrow{\# \text{ B}} \otimes$$

$$\phi \xrightarrow{\# \text{ z}} \phi$$

$$\psi \xrightarrow{\# \text{ c B}} \otimes$$

$$\otimes \xrightarrow{\# \text{ B c}} \psi$$

$$\otimes \xrightarrow{\# \text{ B z}} \phi$$

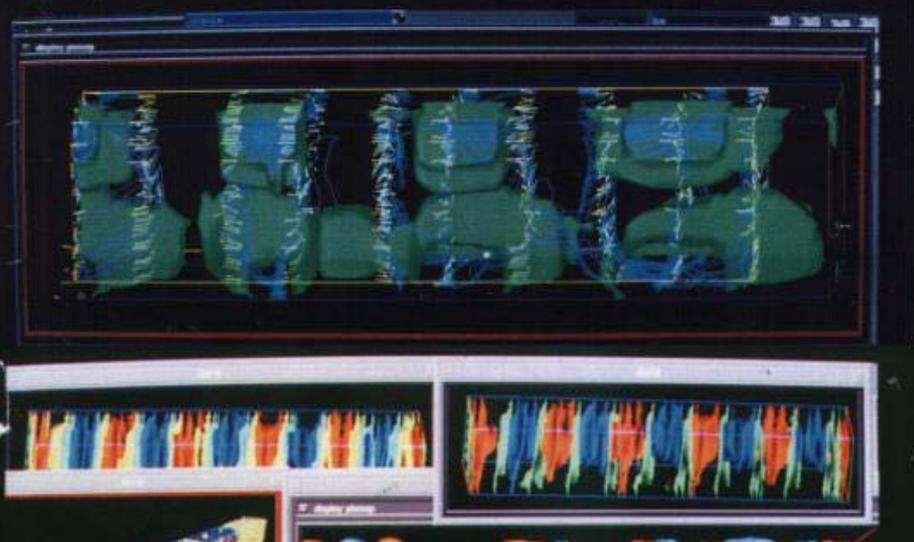
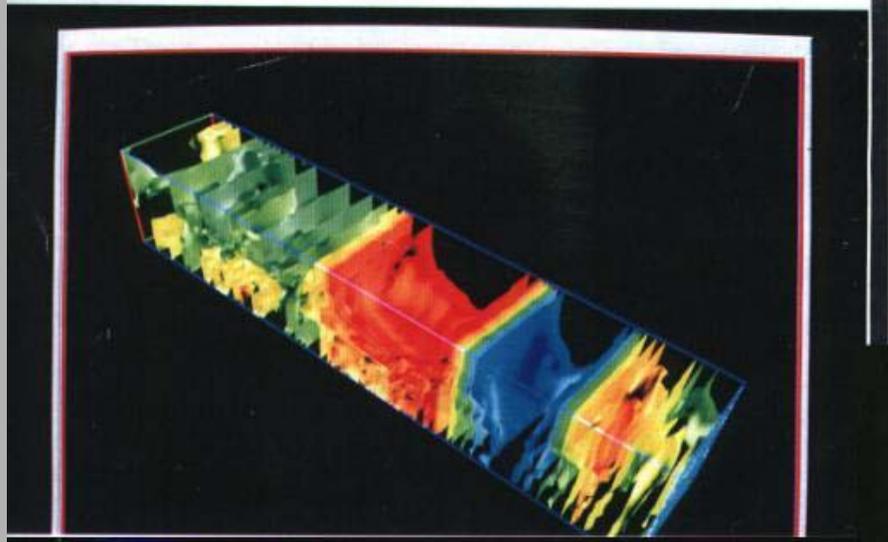
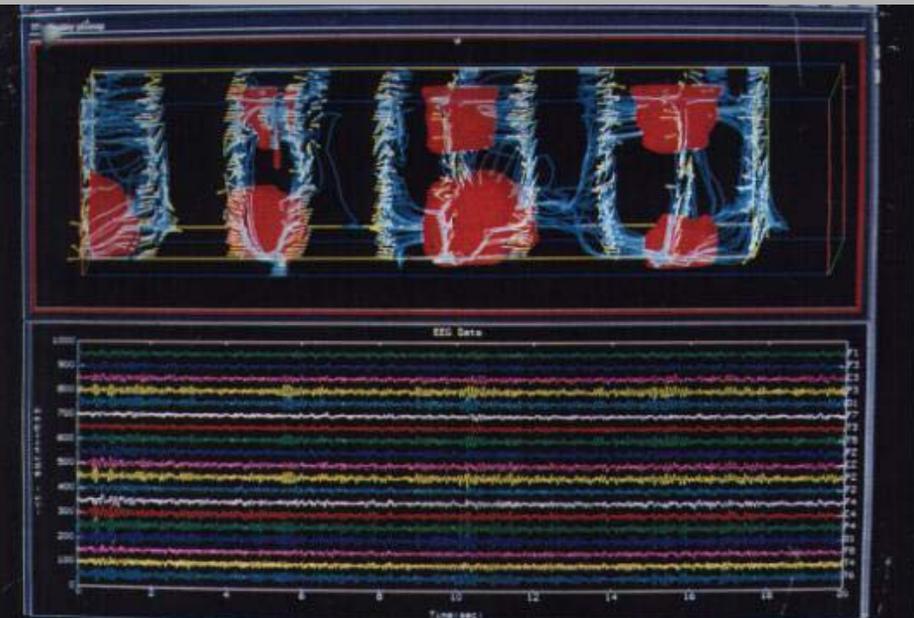
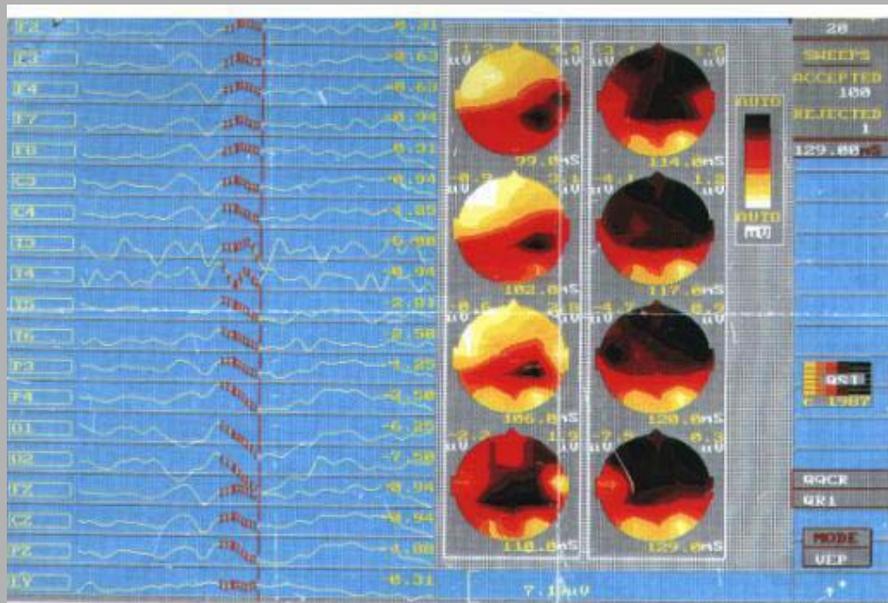
$$\phi \xrightarrow{\# \text{ z B}} \otimes$$

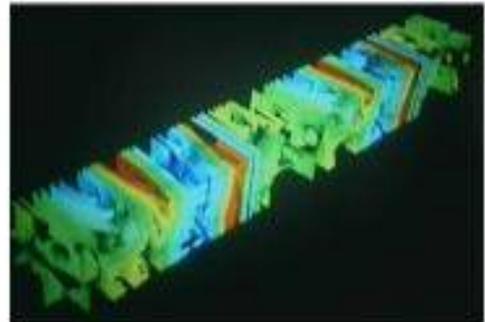
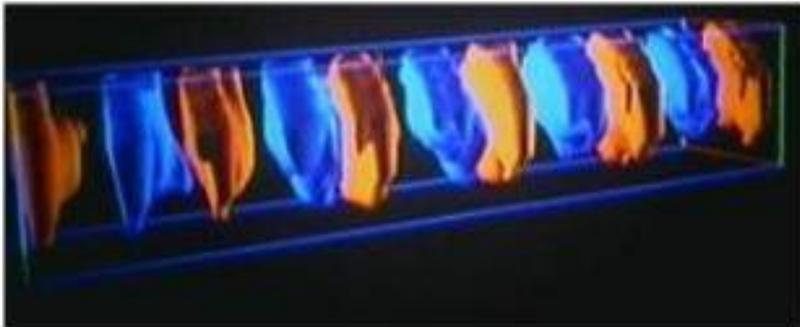
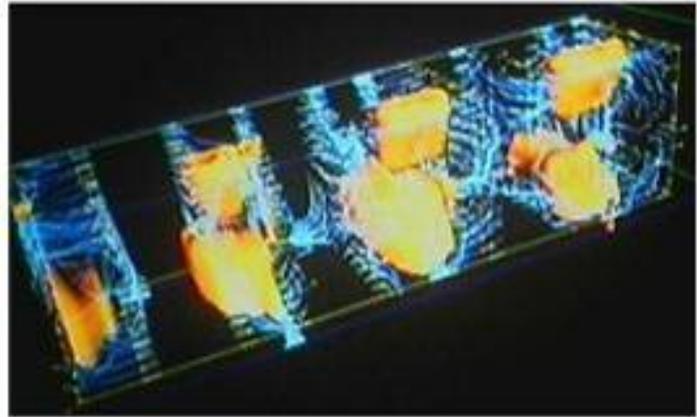
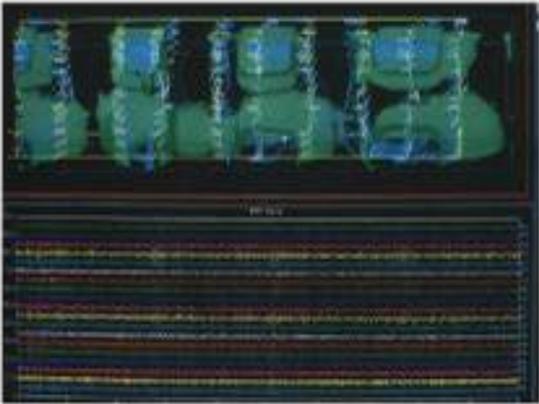
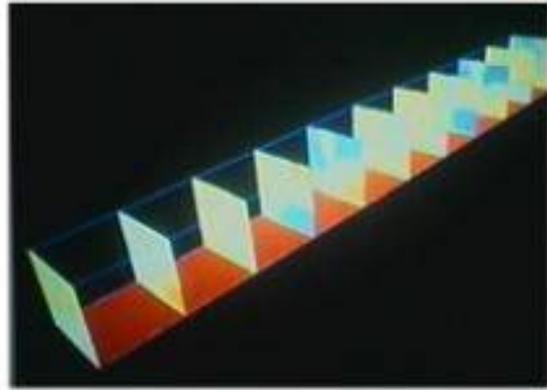
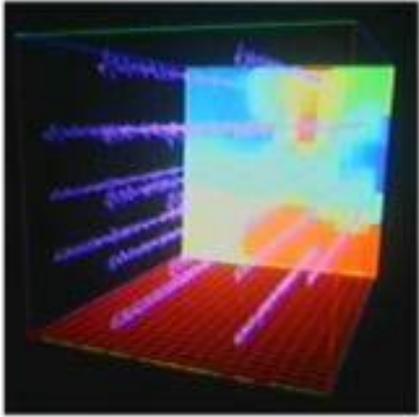
$$\psi \xrightarrow{\# \text{ c B z}} \phi$$

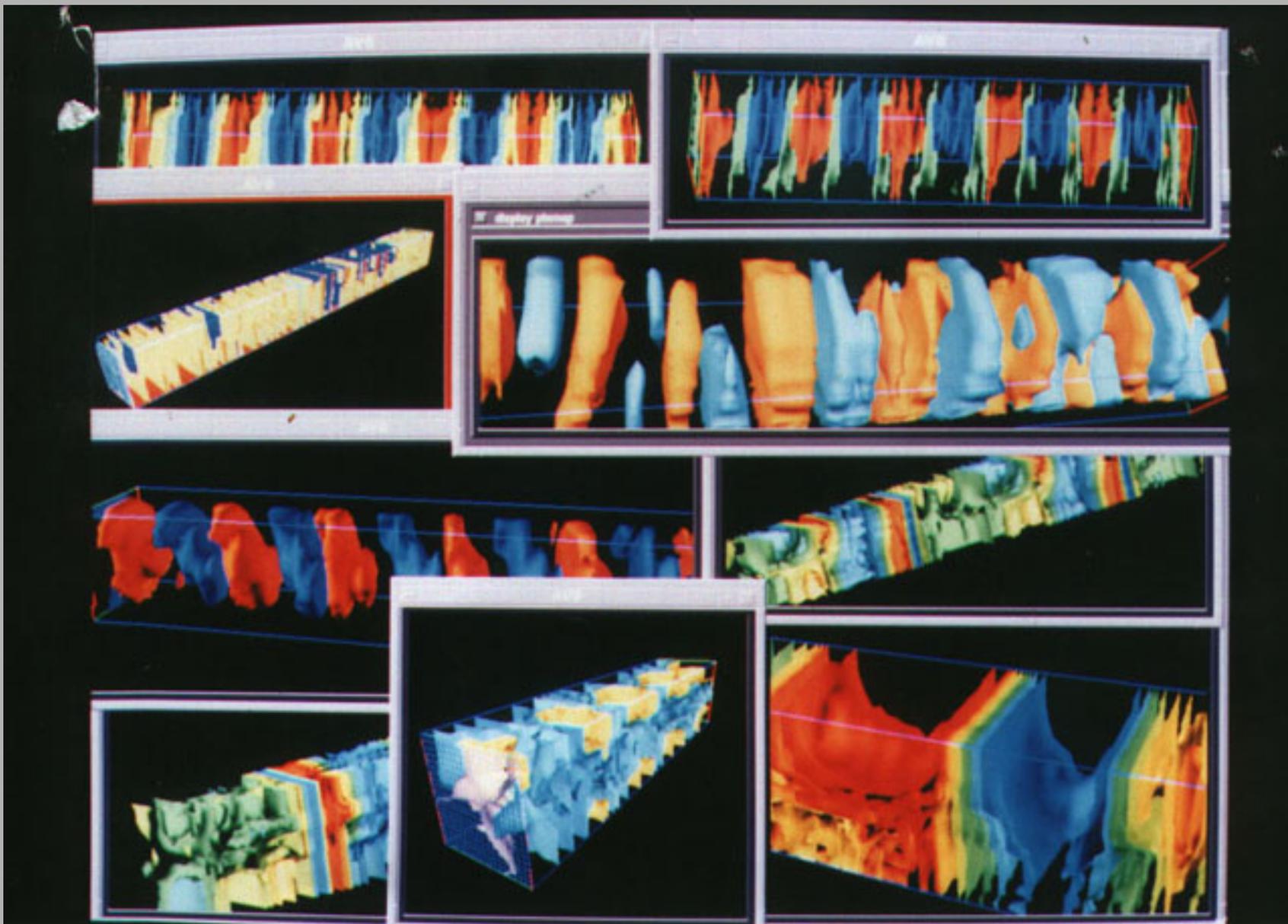
$$\phi \xrightarrow{\# \text{ z B c}} \psi$$

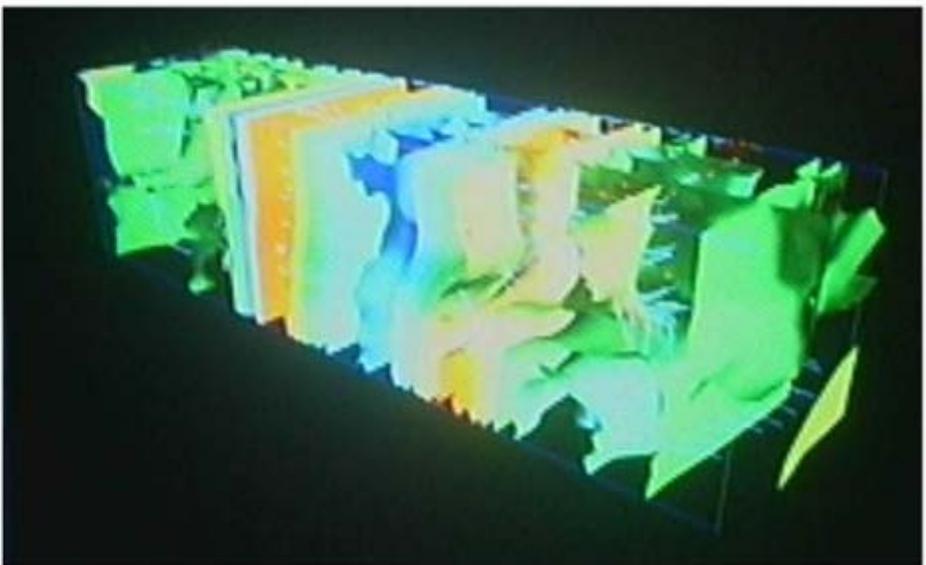
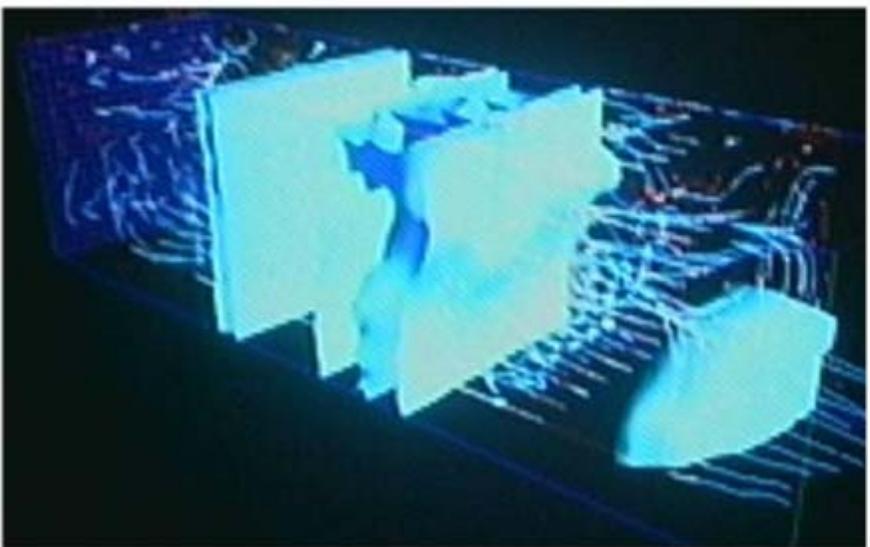
# GROK-IT SCIENCE 101

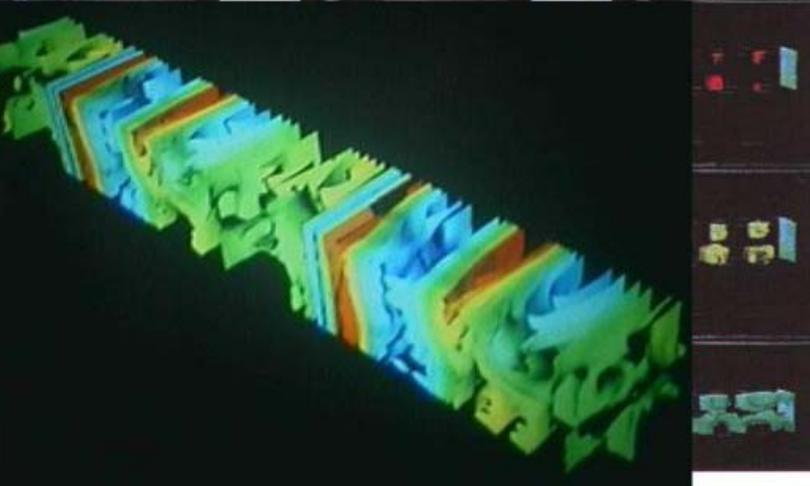
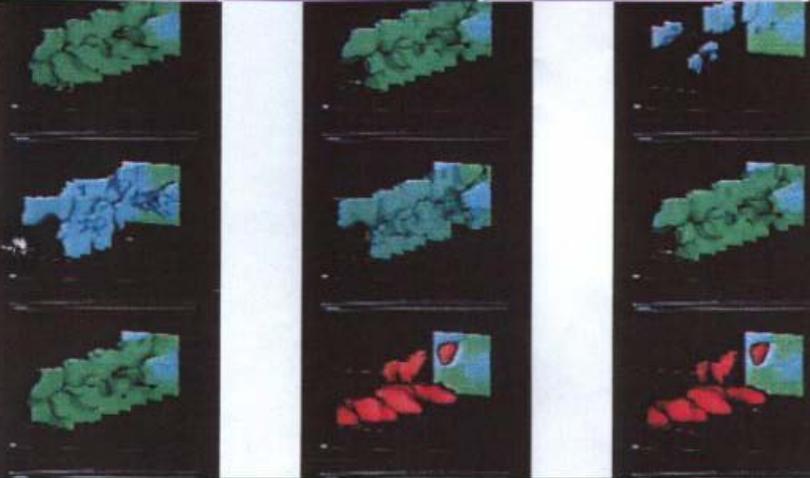
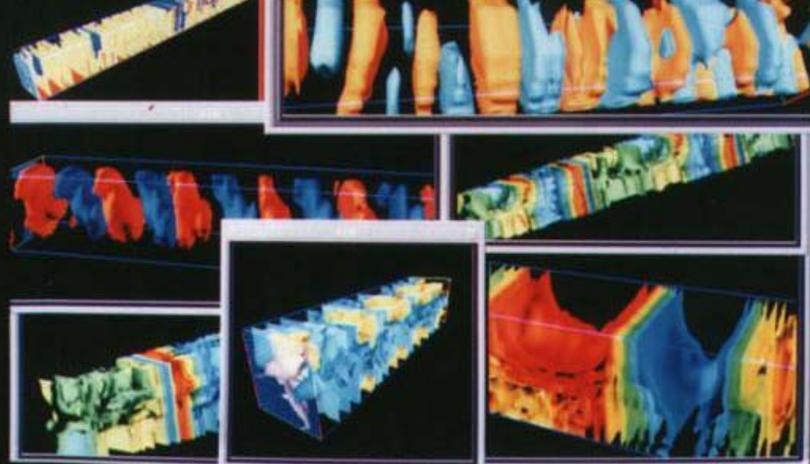
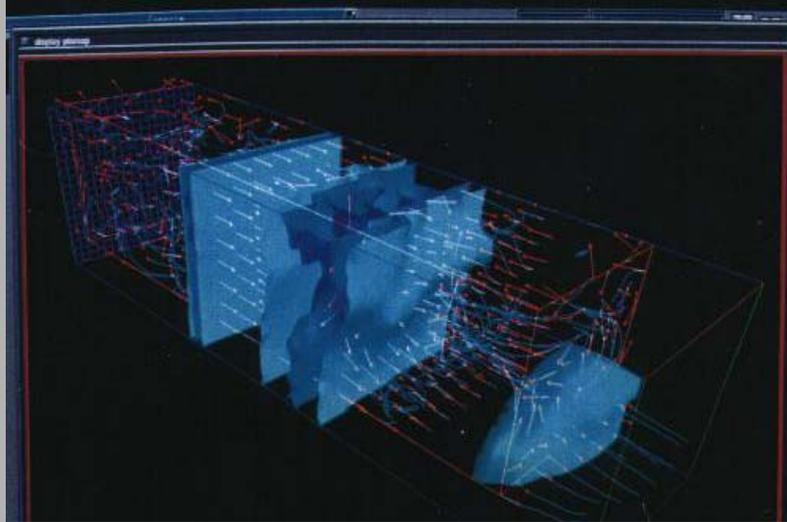
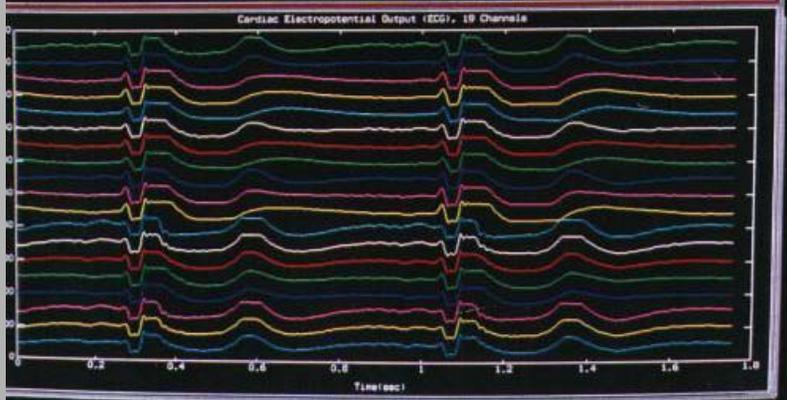
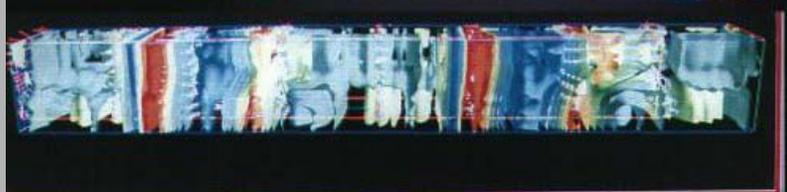
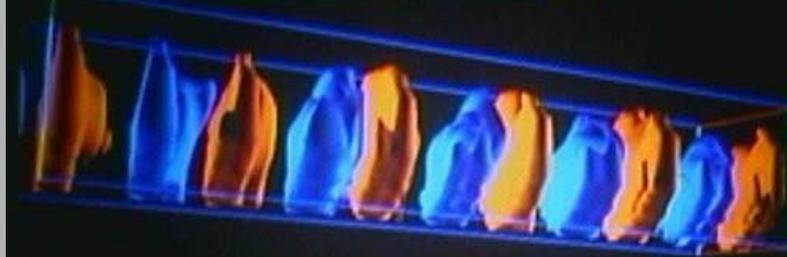


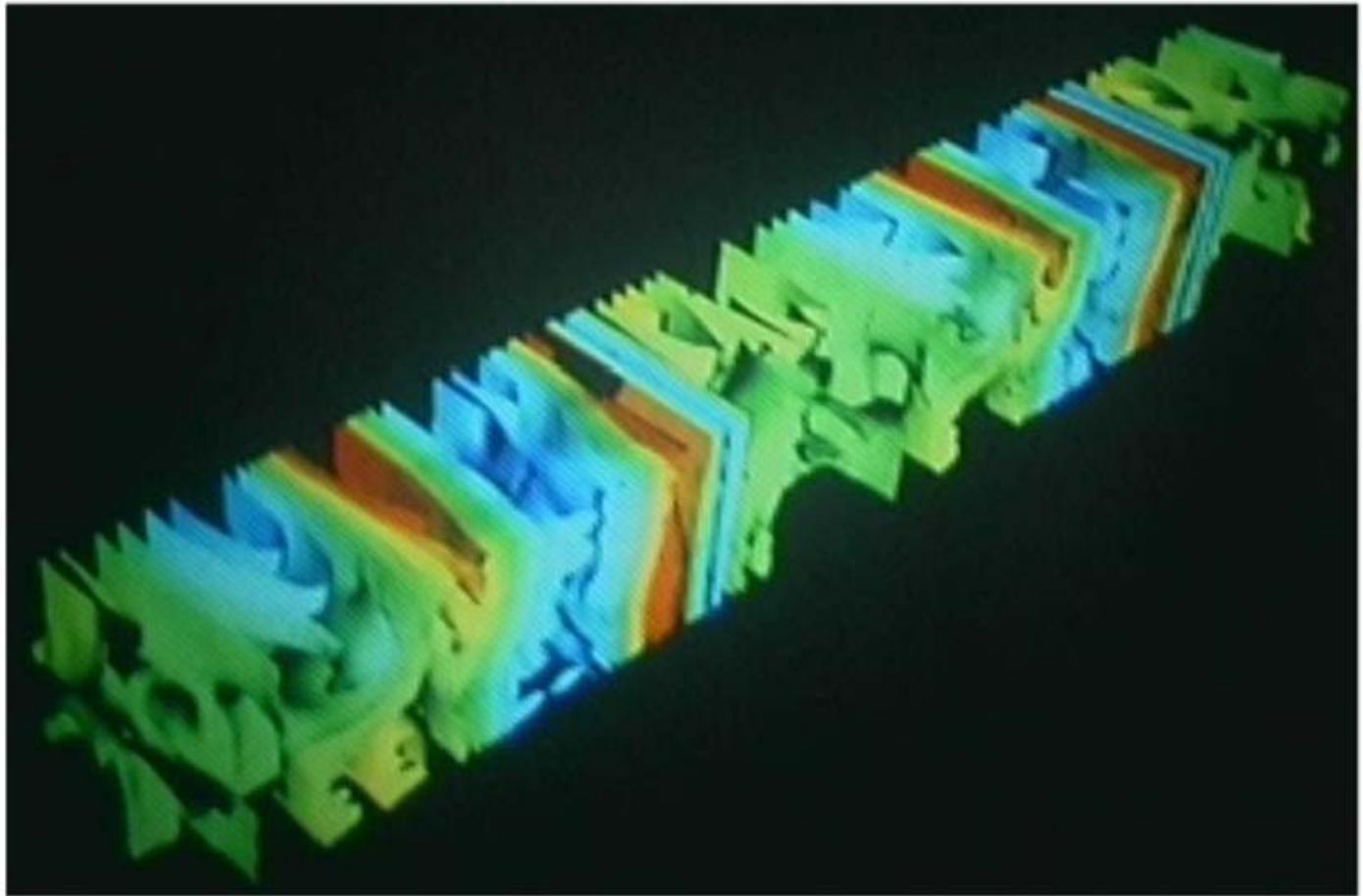






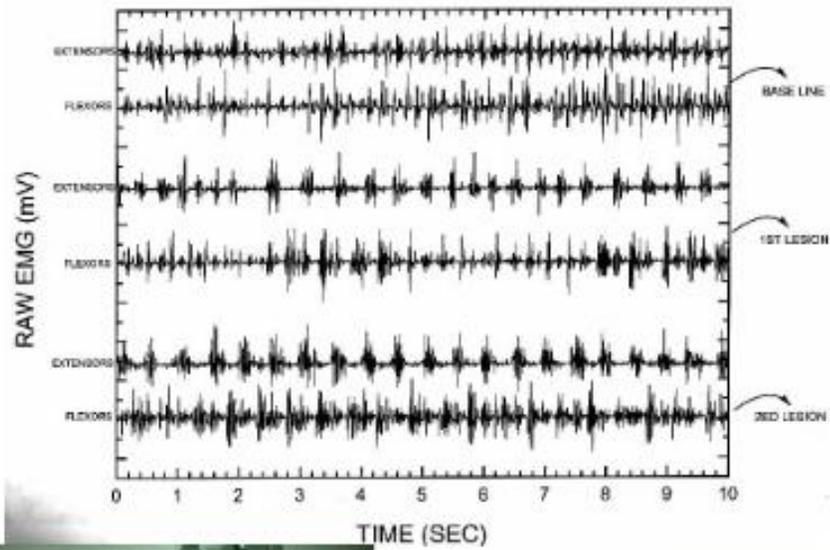




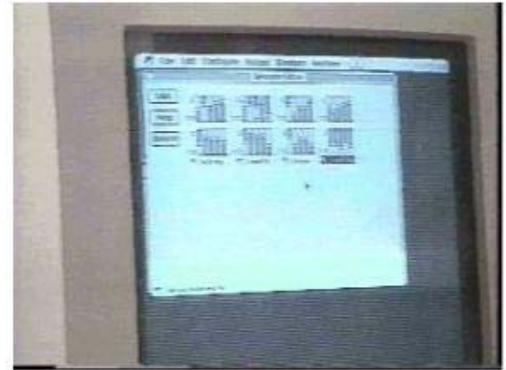




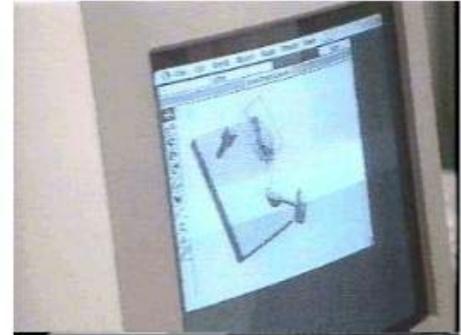
WRIST FLEXION/EXTENSION



# Augmentative Communication



## Applications in Rehabilitation













# BIO

## Where the user ends and the game begins



INSTITUTE  
FOR  
INTERVENTIONAL  
INFORMATICS

DAVE WARNER, M.D.  
DIRECTOR

515-546-2162  
dwarn@linds.loma.edu  
dinfo@linds.loma.edu

www.informatics.org

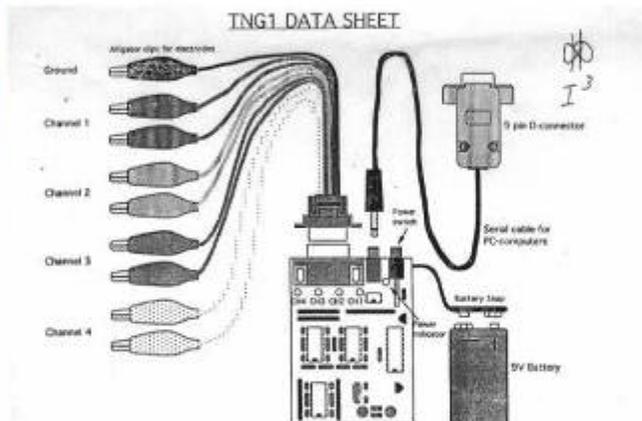
3580 Tustin Mill Cir.  
San Diego, Calif. 92121, USA

## The Thing

The first piece of technology developed by I3 is an EMG (electromyograph) detector known as TNG 1. (i.e., totally neat thing, version one; right photo).

EMG is usually a medical device for measuring voltage shifts in human muscles as they are flexed and relaxed. TNG 1 was built to substitute an earlier version of the same technology known as Biosense, whose revolutionary capacity was to translate EMG signals into computer commands. In the case of Biosense, the signals would become musical pitches. Dr. Warner and his colleagues at Loma Linda, however, realized this technology could be used to take the signals from the movements of facial muscles of quadriplegic children and turn them into more basic computer commands like moving an object around a screen or playing a video game. I3 began when the Biosense technology became available to Dr. Warner and various children at Loma Linda University's pediatric rehab clinic circa 1992.

The second piece of similar technology from I3 is TNG 2. In contrast to TNG 1, TNG 2 translates resistance changes into computer commands. TNG 2 has been used most commonly with light resistant photo cells. By using a special head piece with specifically placed light receptors, movements of cheek muscles distort light paths to the receptors creating a signal. Both gadgets form the foundation of an interventional informatic useful to quadriplegics and are referred to as 'gesture transducers' as they are translating gestures from the face into input signals ( examples and electronic diagrams ).



### Input signal :

The input is a 4 channel analog AC signal sampled at 160 per second.

### Output data :

The signal is converted into an 8 bit, transmitted at 3600 bytes per second . The processing takes place in an on board 8 bit microprocessor equipped with \* TNG1 Driver\* software. The optically isolated output can withstand a potential difference of 5 kV (equivalent to resistance in excess of 20 megohms between the computer and the TNG1).

TNG1 has been approved by Loma Linda University Medical Center's Department of Clinical Engineering for use as present in clinical settings.

Power supply: 9V battery such as 9V Duracell MN1604 Alkaline battery.

### Electrode configuration and attachment:

Each channel has two active electrodes (differential input) with one ground electrode common to the set of four channels. The ground electrode should be placed on a skin area free of underlying muscle to minimize artifacts. Optimal placement of each differential electrode pair can be determined by feeling the muscle of interest as it is contracted and relaxed. It is also best to place the electrodes in an area where there is the least fat tissue, cleaning the skin with alcohol before putting on electrodes will also help to make a good electrical contact.

### Serial Data protocol :

The Communication parameters are 3600 baud, 8 bit, no parity, and one stop bit. The input data stream is five bytes long. The first byte is the value 255, which is a synchronizing byte. The next bytes are the binary values of channels 1 through 4. The value of two channels is limited here zero to 252. ( See the following sketch).

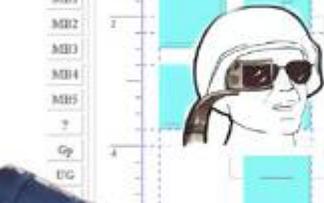


INSTITUTE for Interventional Informatics

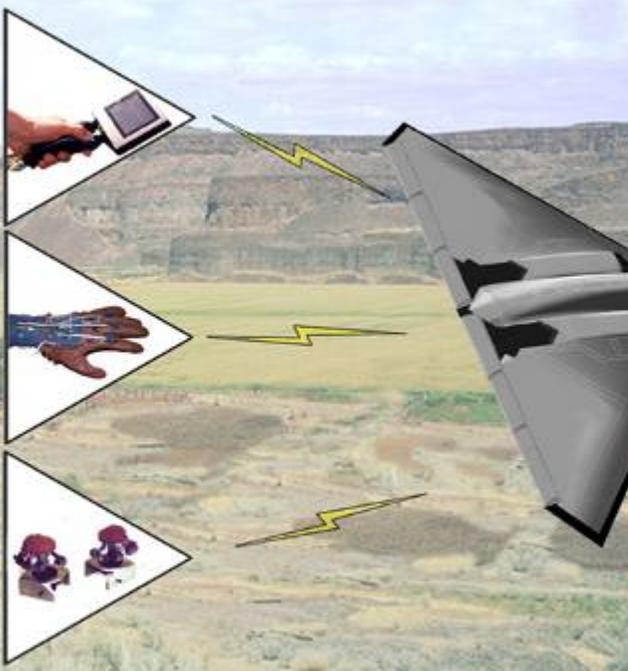
14054 Tulp Ave., Loma Linda CA 92354, Phone: (909)793-3300, FAX: (909)799-0106, Email: dwarn@linds.com



Wearable Ground Station

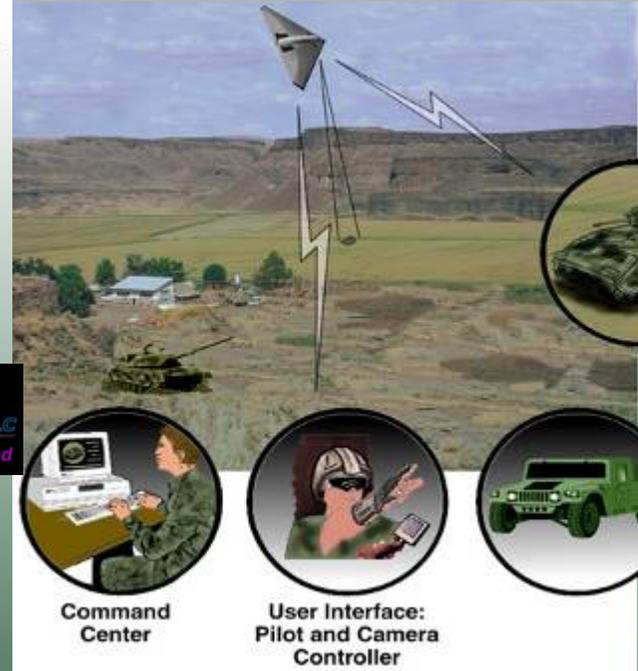


Wearable Ground Station



W.A.G.S.  
Wearable Air Ground Station

Conceptual  
Interface  
Systems



W.A.G.S.  
Wearable Air Ground Station

UAV - Pan  
Tilt  
Zoom  
Focus

Enemy activity  
transmitted by  
video.



Launch Vehicle &  
Command Relay Center

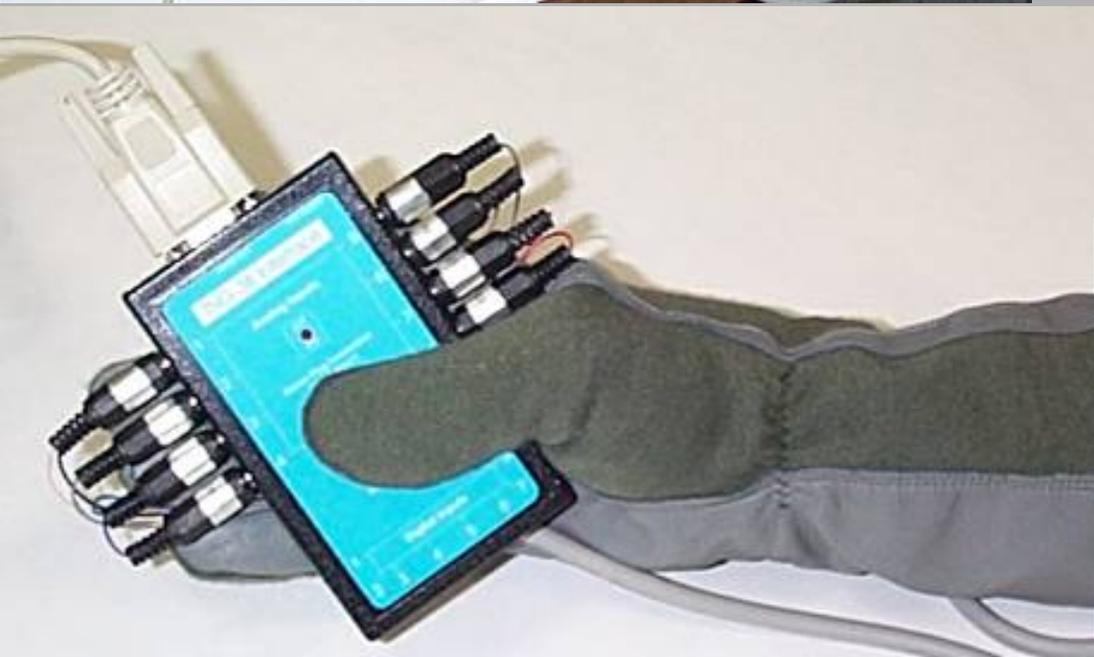
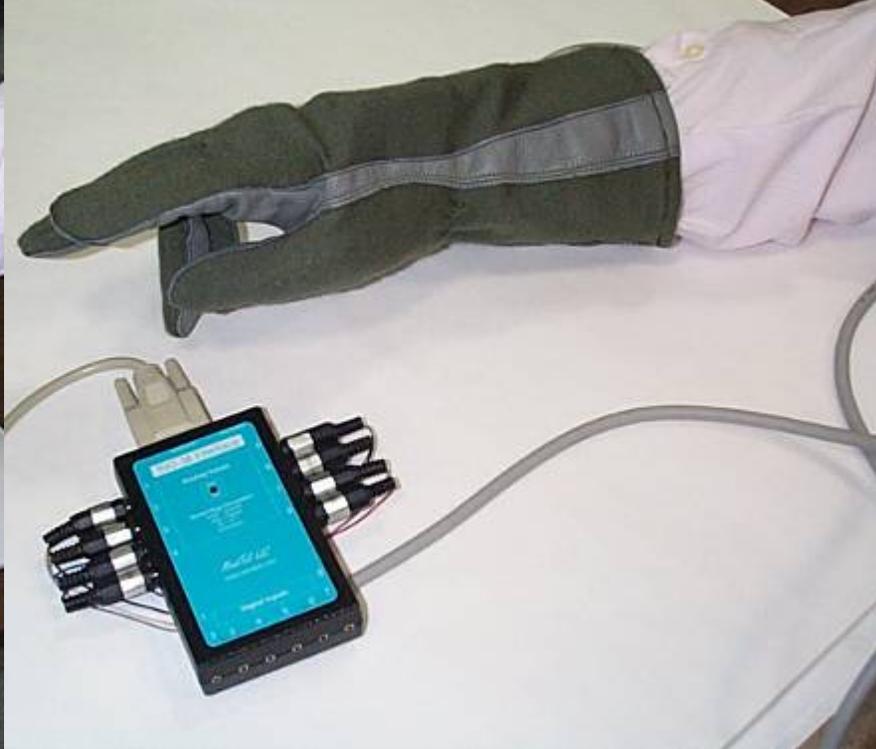
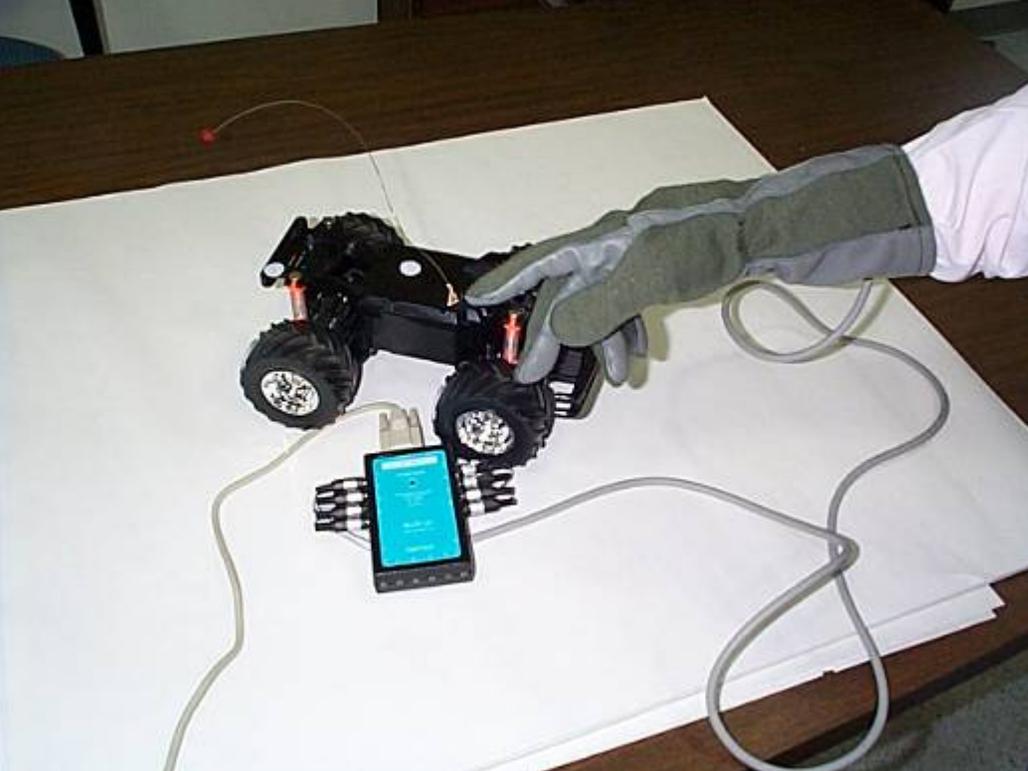


Command  
Center

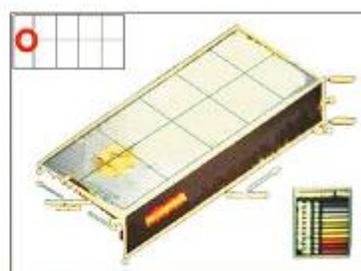


User Interface:  
Pilot and Camera  
Controller

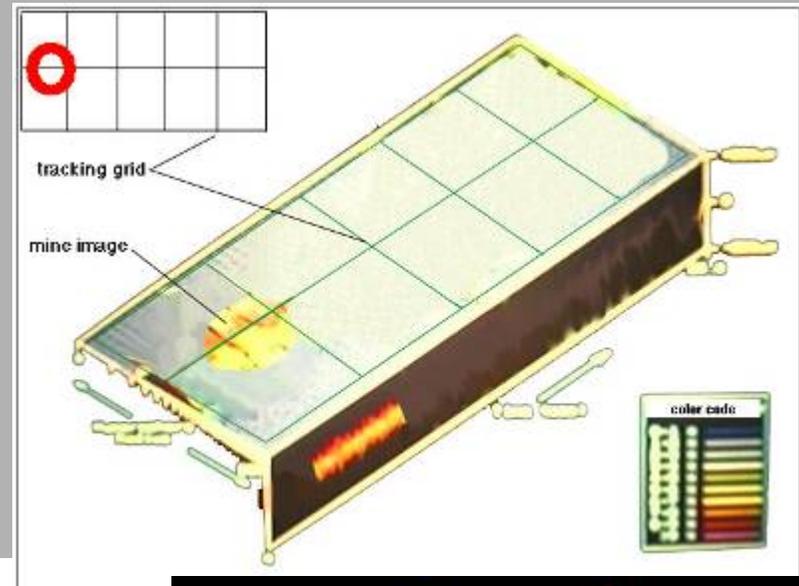




# MINE DETECTION: GRAPHICAL INTERFACE



Coordinate tracking display with isotopic graphical imaging. 2-D grid display in top left, and color code data in bottom right.



# MINE DETECTION: GRAPHICAL INTERFACE



TRACKER STATUS:  
 SENDING UNIT: OK  
 RECEIVER 1: OK  
 RECEIVER 2: OK  
 RECEIVER 3: OK  
 RECEIVER 4: OK

POSITIONAL ACCURACY: 100M  
 GRID SCANS: 100  
 CALIBRATE NEW POSITION

SECTION: 44-9-18  
 possible extent

- 1
- 2
- 3

1. simple grid showing possible mine.
2. isometric image.
3. additional sector detail.

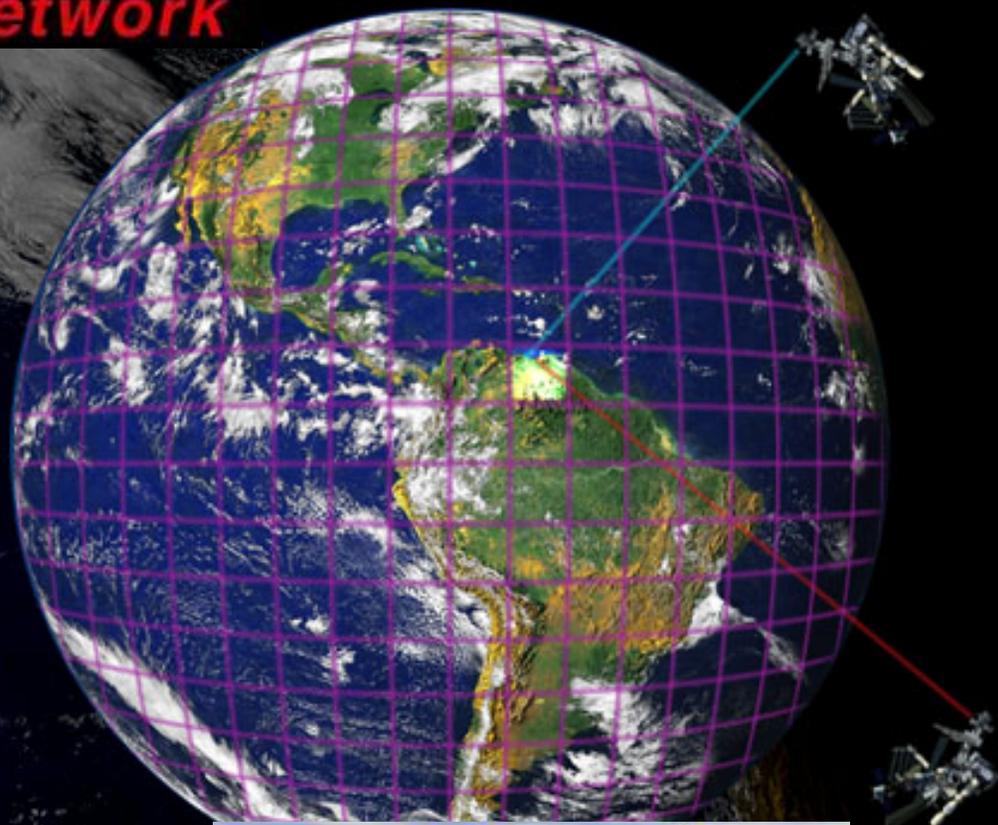


# Globalized



# Medical Intelligence

# Global Information Network

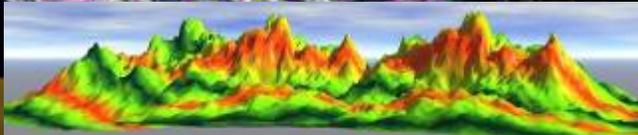


**Political**

**Military**

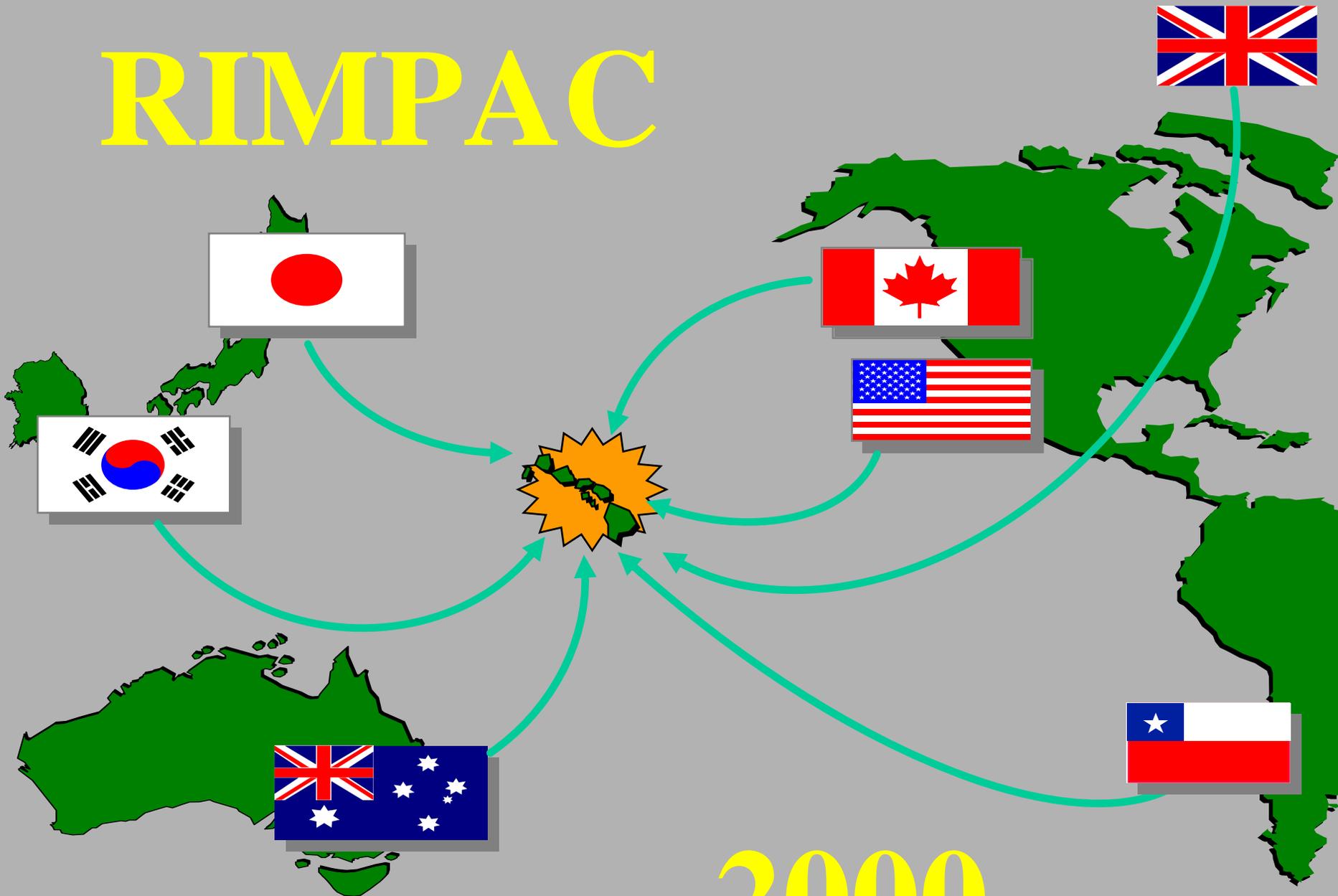
**Civic**

**Environmental**



**Simultaneous Multi-Network Monitoring**

# RIMPAC



2000

# STRONG ANGEL

HUMANITARIAN ASSISTANCE THROUGH  
CIVILIAN/MILITARY COOPERATION



# Strong Angel I

(Kosovo lessons, 2000)

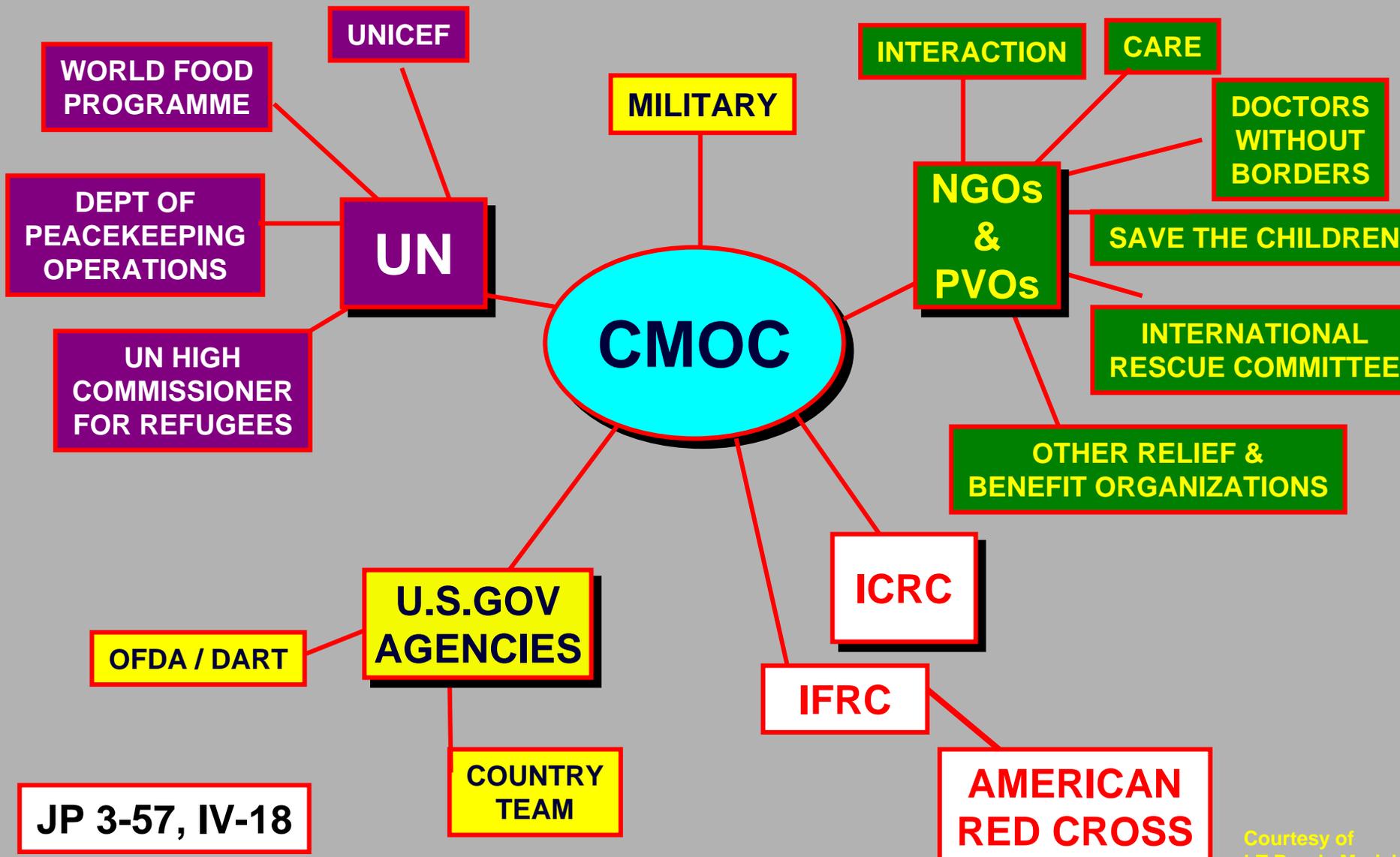


# Puu Paa from the CMOC site



# Puu Paa Refugee Camp site





**JP 3-57, IV-18**



Social networks have proven critical...

From **Strong Angel 2000** to **Iraq** to **Indonesia**...UN staff who were present for each







### Vitals



[Click here to collect vitals](#)

TEMP 101.8

BP

p 61 O<sub>2</sub> 96

Still

Start Recording

Stop Recording

### Recording Bin

Check records to be retained

- Vit 2/13/01 1310hrs
- EVA 2/13/01 1345hrs 12min
- EKG 2/13/01 1400hrs 1.30min
- EVA 2/13/01 1407hrs 4min
- Vit 2/13/01 1422hrs

Store Recording

FWD Recording

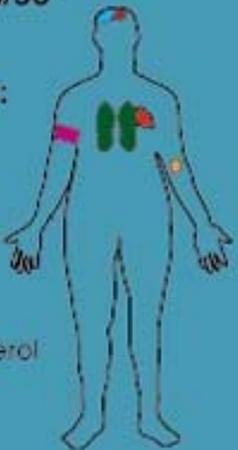
#HL03242-3

Lazario, Hector

DOB: 10/18/58

AGE: 42

LOCATION:



### History:

- High Cholesterol
- Stroke
- HBP
- Angina







# DMIAS-Database

additional functions

picture database (e.g. for identification of persons)

**Picture Administration**

Select person to take picture

| pers_id | Name 2    | Name 1  |
|---------|-----------|---------|
| 473     | Karen     | Jack    |
| 826     | Karen     | Frank   |
| 896     | Karen     | Jack    |
| 1005    | Kesztyues | Tibor   |
| 152     | Kiesbauer | Alessio |
| 504     | Kiesbauer | Betty   |
| 612     | Kiesbauer | Dylan   |

selected is: Kesztyues

Available pictures of selected person

| picture_id | picture_datetime      | picture description |
|------------|-----------------------|---------------------|
| 32         | 05/25/2000 9:40:57 PM |                     |
| 33         | 05/25/2000 9:41:02 PM |                     |
| 34         | 05/25/2000 9:41:05 PM |                     |
| 35         | 06/09/2000 1:01:30 PM |                     |



Activate Camera      Take picture      Exit

# Communications

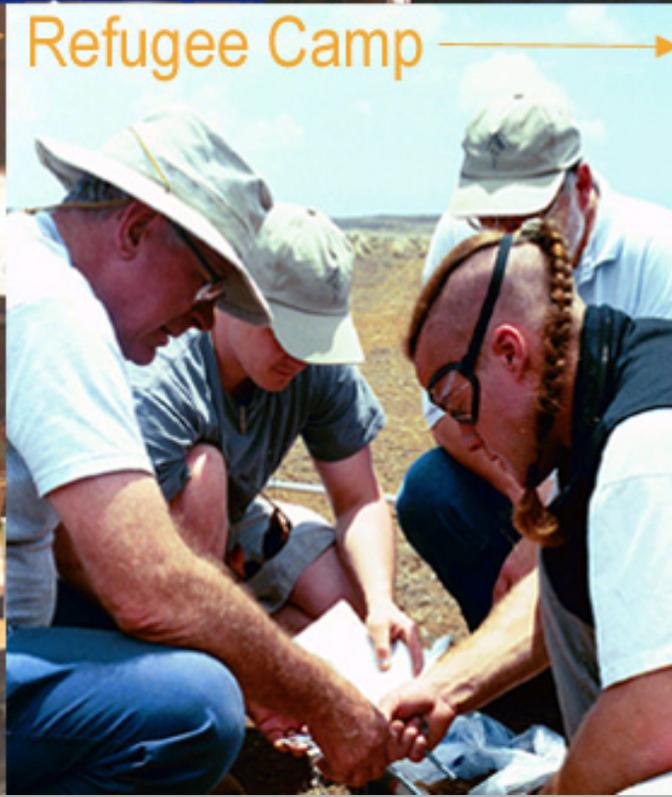
Personal communications between the militaries, humanitarian organizations, NGOs, and educational institutions was critical. Diversities in structural organizations offered unforeseen challenges; challenges that had to be overcome in order to successfully complete the mission.



CMOC



Refugee Camp



Med Tent



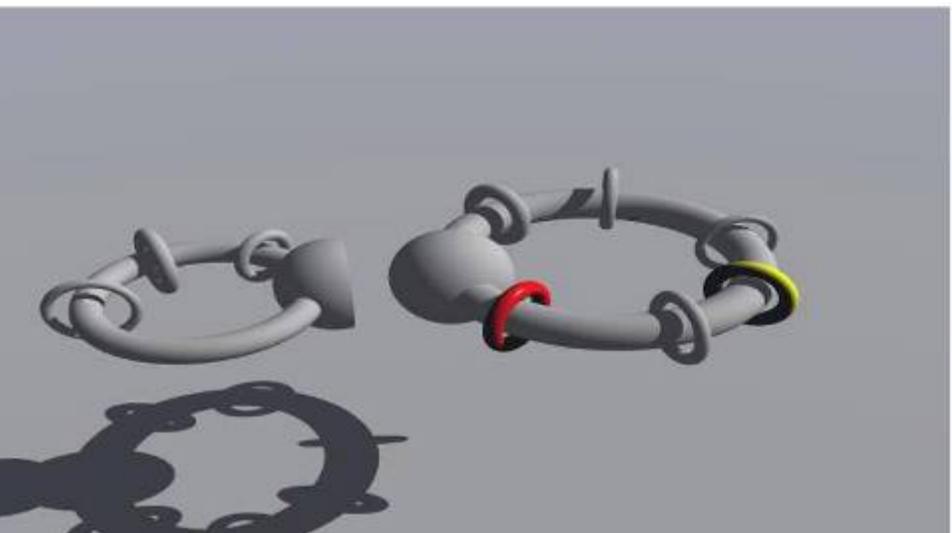
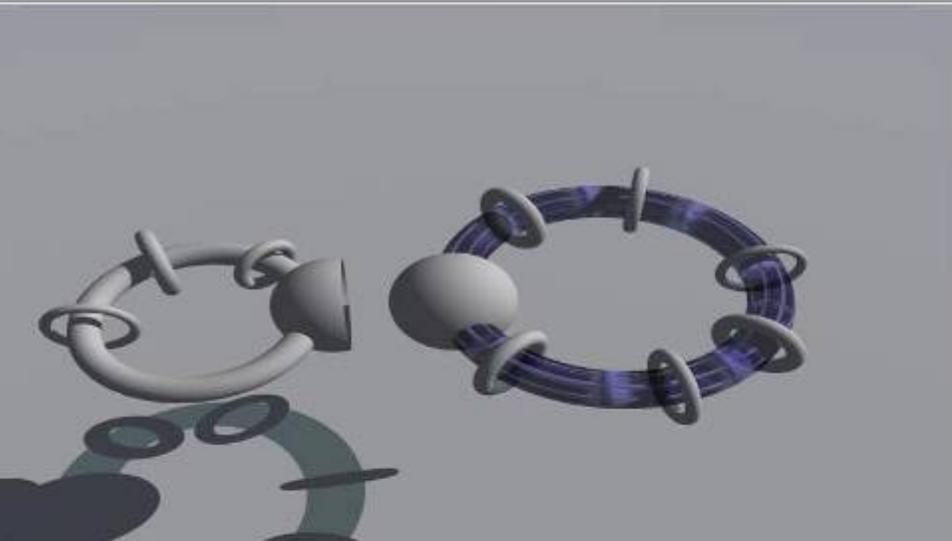
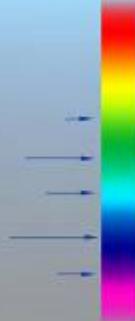
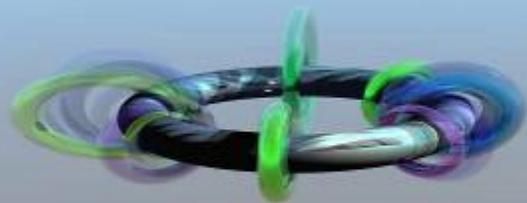


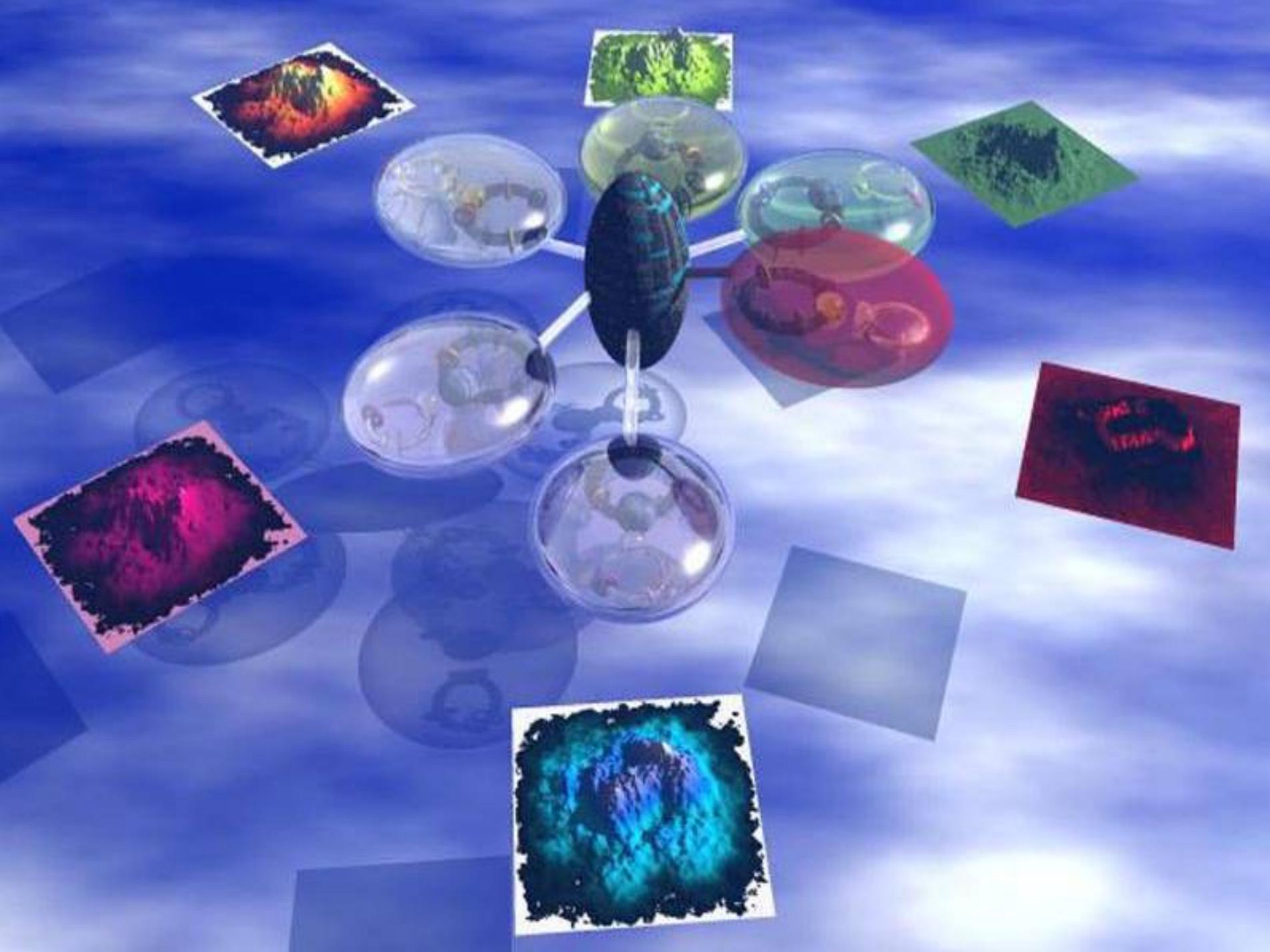
**Shipboard Humanitarian Planning Team**

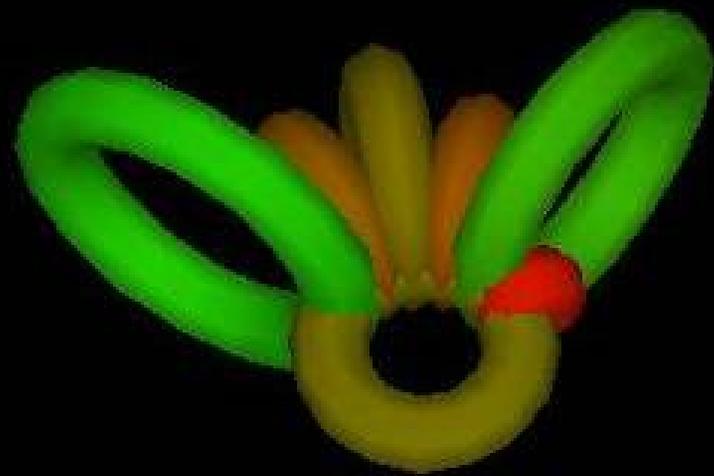
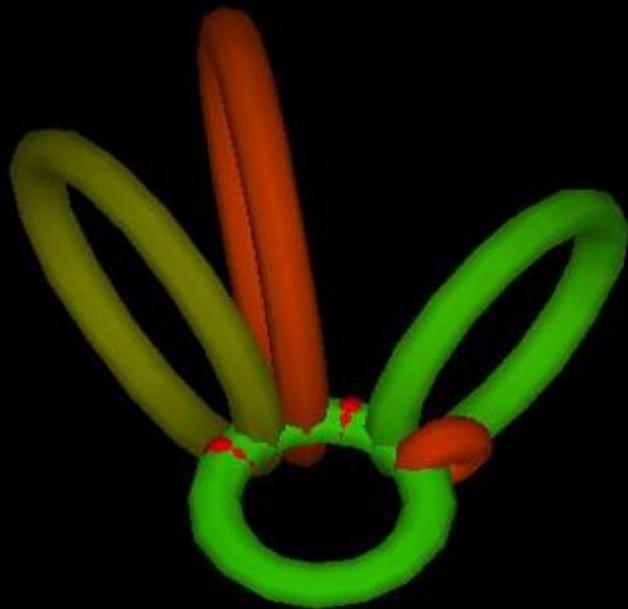
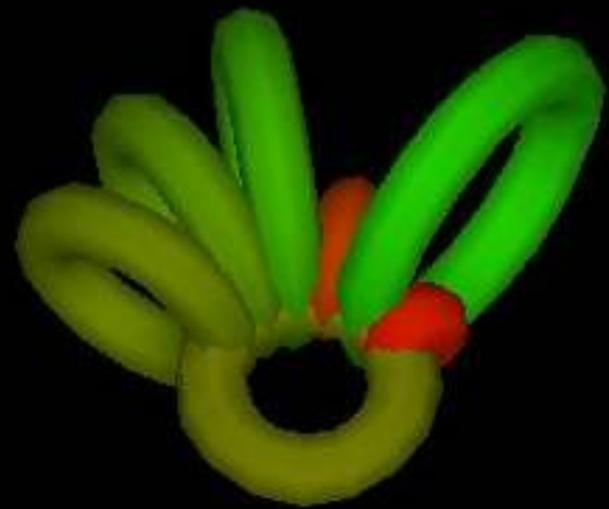
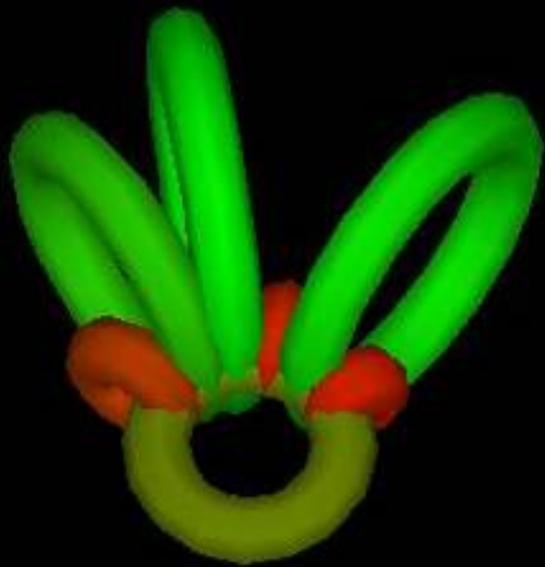


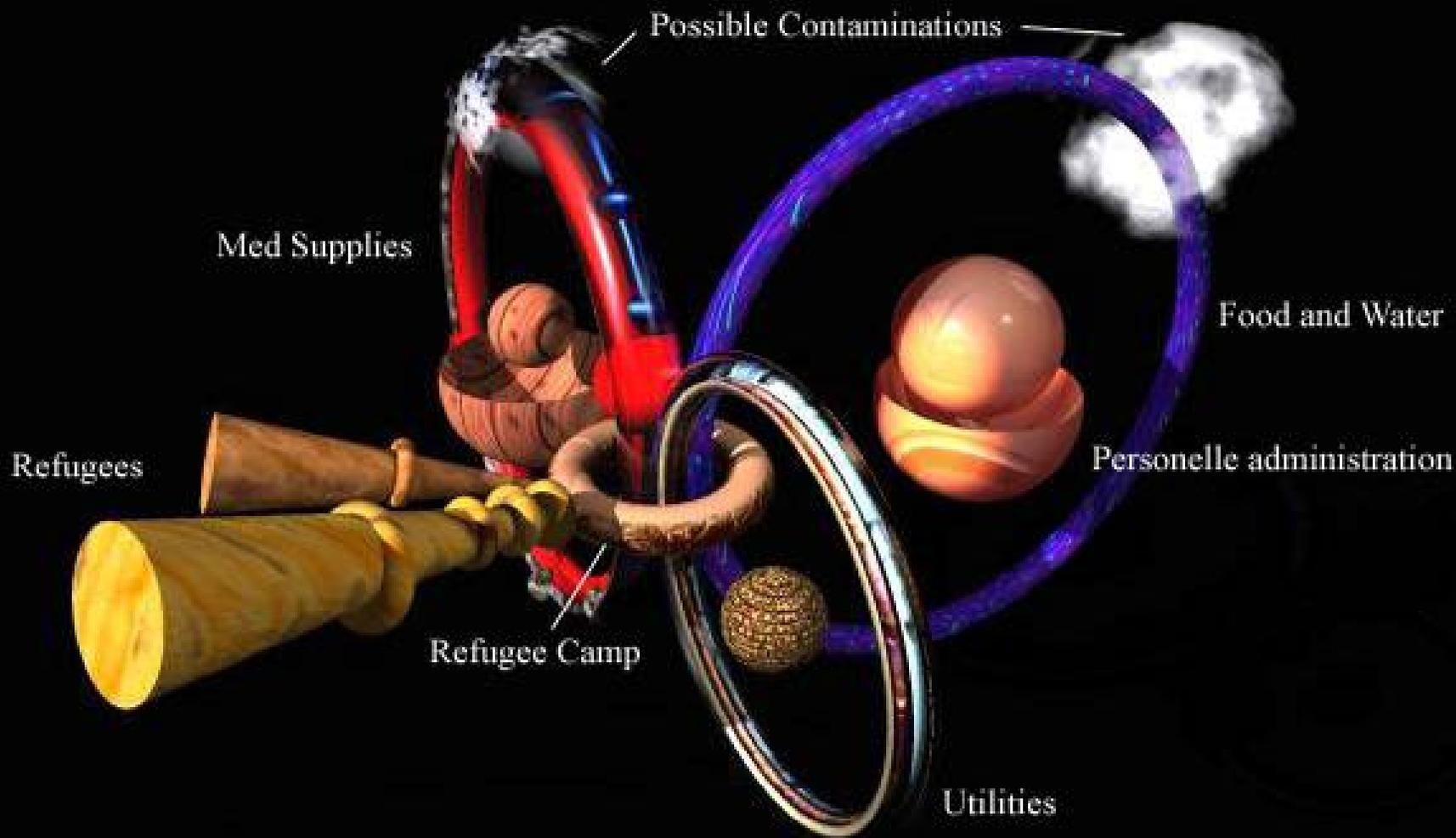
**Collaborative technology supporting the CMOC**















is that  
an implant?

The future went  
that way . . . sir

MindTel LLC  
Intelligence on Demand







World Food Programme

**KAKUMA CAMP**

FOOD SUPPLIED BY  
**WFP**

**DON BOSCO KAKUMA**



TECHNICAL TRAINING  
INCOME GENERATING  
PRODUCTION UNITS  
FOOD

UNHCR • AUSTRALIAN GOVERNMENT • CARITAS  
LWF • AUSTCARE • CIM • WAKACHAI  
BMZ • DON BOSCO GERMANY • COMIDE



**LWF/DWS**  
LUTHERAN WORLD FEDERATION  
DEPARTMENT FOR WORLD SERVICE  
EMERGENCY RELIEF OPERATIONS

KAKUMA REFUGEE CAMP.



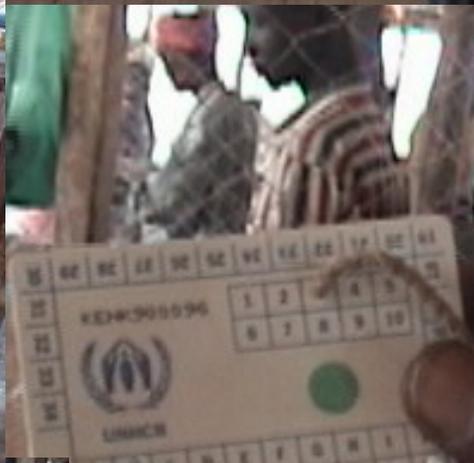
INTERNATIONAL RESCUE COMMITTEE

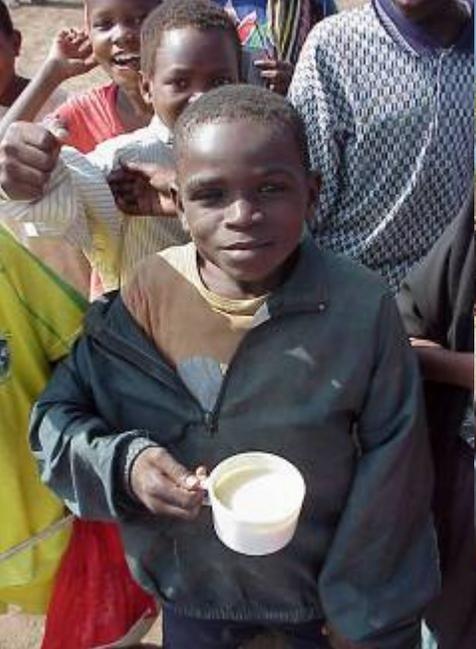
KAKUMA REFUGEE CAMP  
KENYA



**U N H C R**  
Field Outpost Office  
No 3







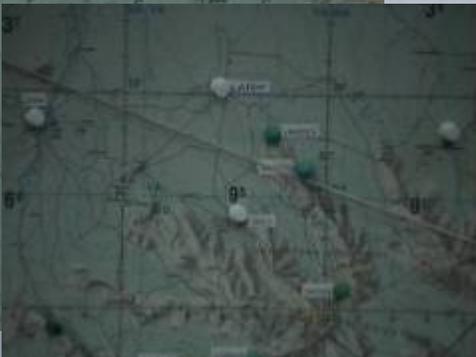
TYPICAL SERVING OF 100g DRY CONTAINS  
400 KCAL  
14 g PROTEIN  
73 FAT

DATE OF MANUFACTURE —  
USE BY —  
BATCH No. —  
MANUFACTURED BY:  
PROCTOR & ALLAN (EA) LTD  
P. O. BOX 18218  
NAIROBI  
TEL 25636115











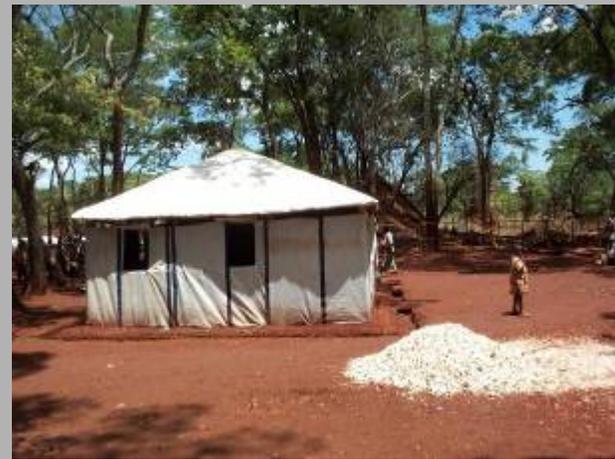
GARMIN GPS 165  
MSA 41004  
NOG 44.545 E032 47.321  
RWPT: JU 031 132.96



WELCOME TO  
MEHEBA REFUGEE SETTLEMENT  
ESTABLISHED IN  
1971  
← EWF UNHCR GRZ







: : : : | : : : :

# Major Disease Outbreak

## Public Health Dept.

- State PHO
- CDC
- Local PHO

## Emergency Management Agencies

- Fire
- Police
- EMS

## Hospital Networks

- DoD
- Civilian
- VA
- Community Centers

## Gov. Agencies

- FEMA
- CDC
- Red Cross

## Military Support Organizations

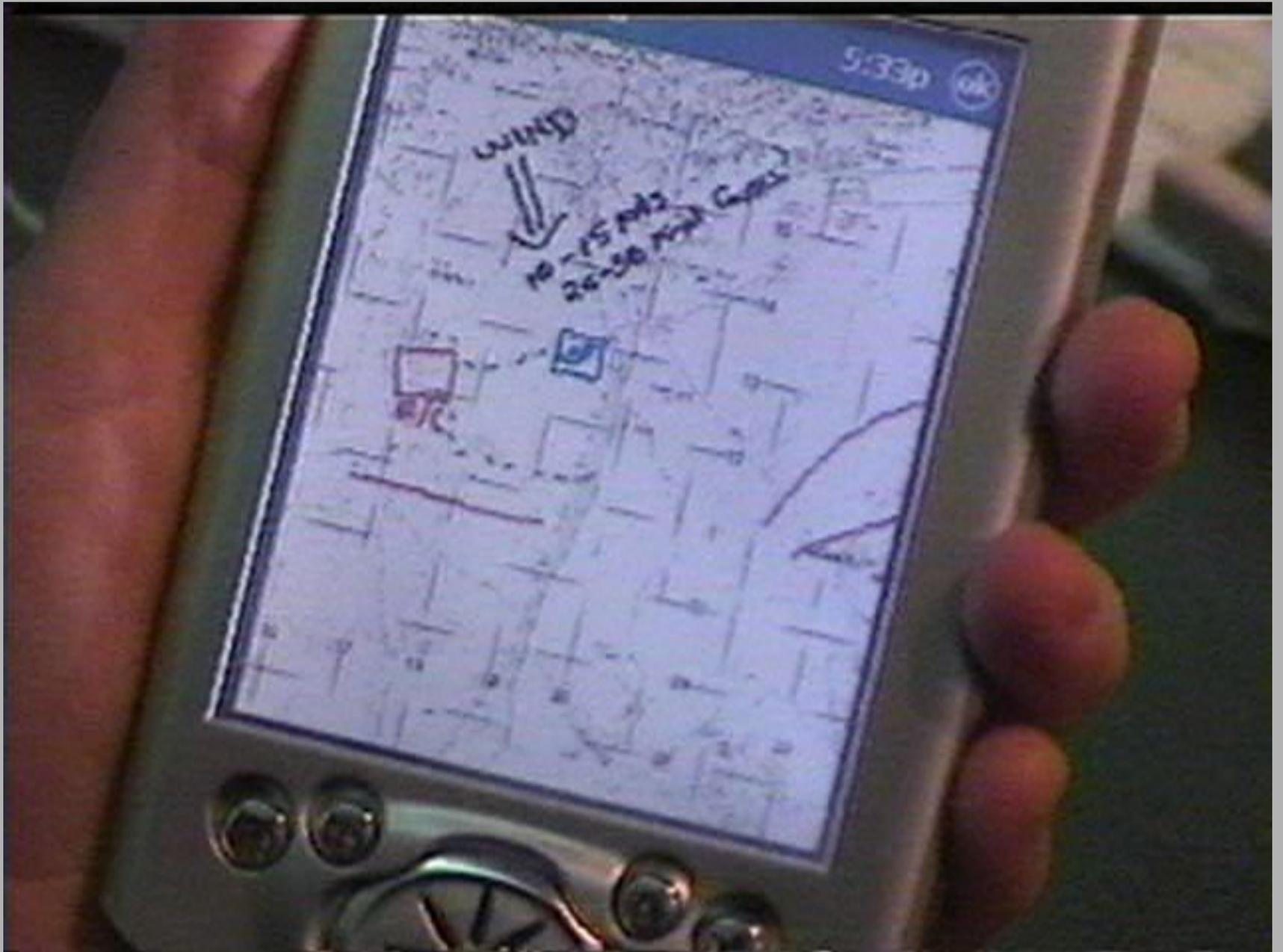
- JFC
- CBIRF
- Special Ops



4 Serial Ports

Battery Powered

Ethernet





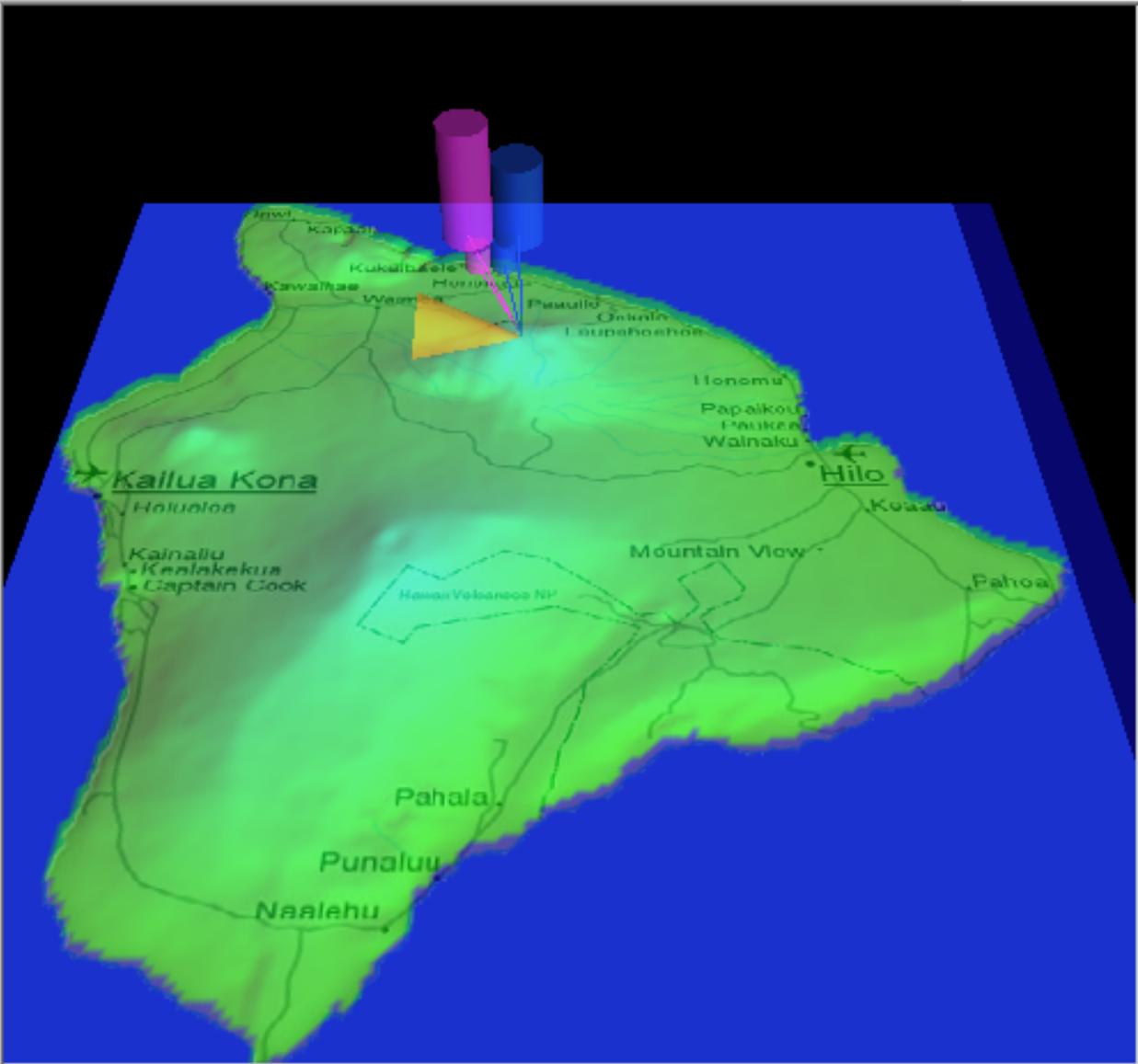
- Population ▲
- Household ▲
- Sanitation ▲
- Obstetric ▲
- Health ▲
- Disease ▲
- Food ▲
- Water ▲
- Power ▲
- Land Use ▲
- Special Event ▲

Terrain Height

Terrain Transparency

Data Height

Data Transparency



Map navigation and control panel including zoom in/out, pan, and a vertical color scale legend.

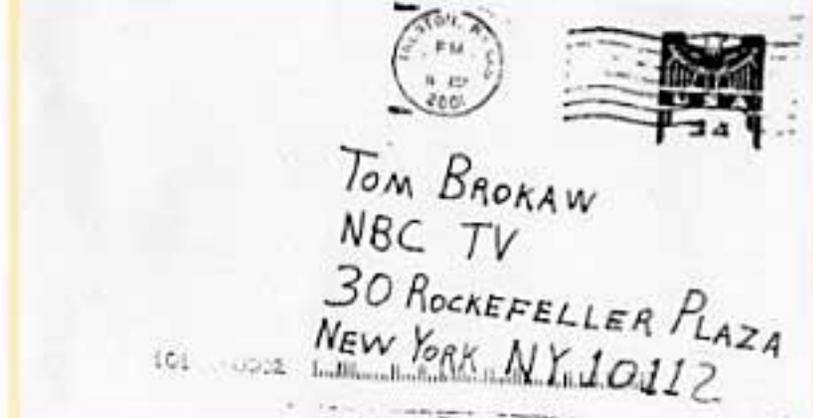
Map navigation and control panel including zoom in/out, pan, and a horizontal color scale legend.





**“Our nation has been put on notice. We're not immune from attack”**

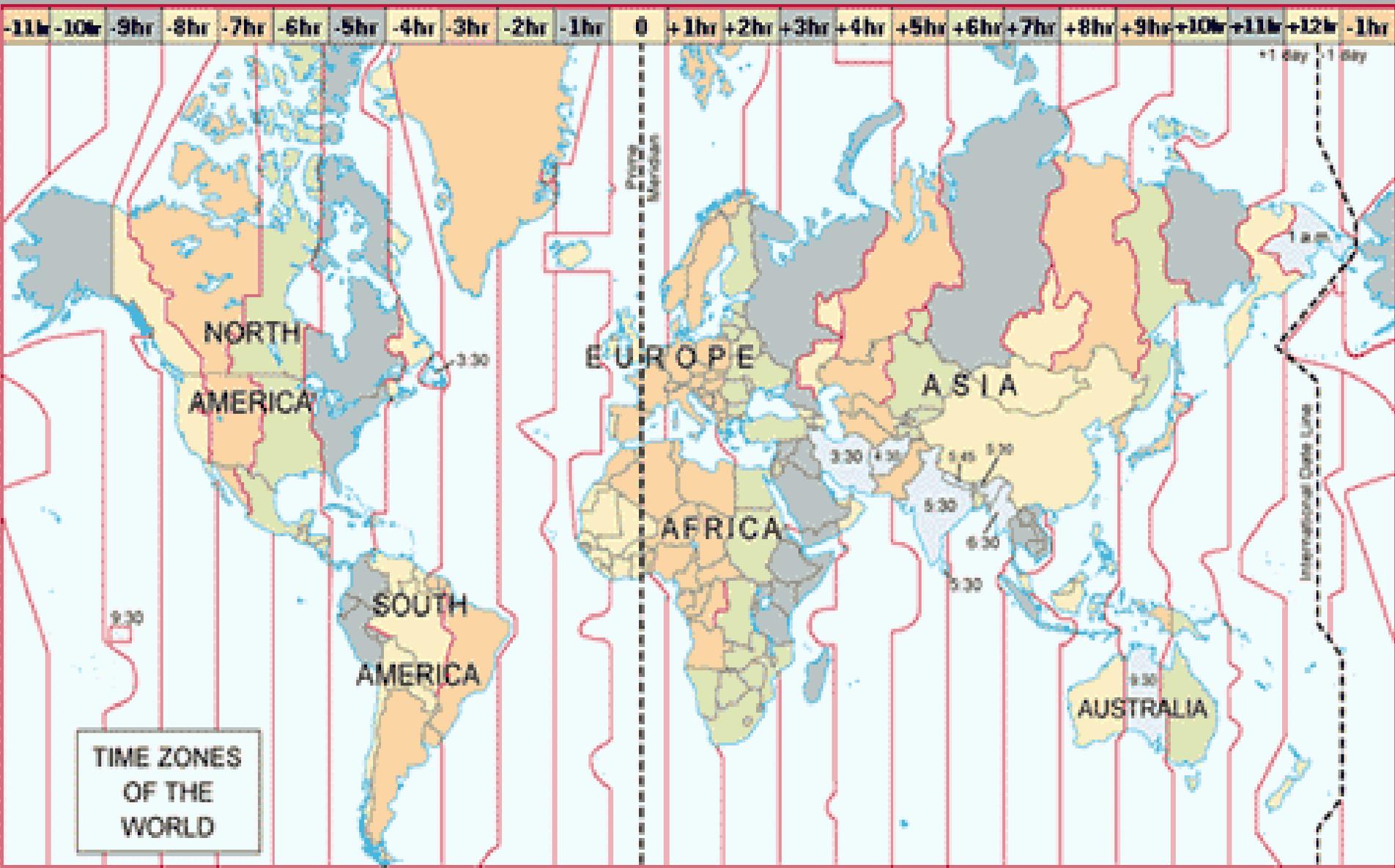
President George W. Bush  
21 September 01



Letter to Tom Brokaw



Letter to Senator Daschle



TIME ZONES OF THE WORLD

- Folders
- tides2000.mitre.org
    - \_help
    - \_hotbox (14)
    - disease.hemorrhagic-fever (60)
    - disease.measles (42)
    - disease.tularemia
    - epidem-news.promed (128)
    - epidem-news.who-disease-outbreak
    - newswire.al-ahram (452)
    - newswire.aliasoft
    - newswire.arabic-news (768)
    - newswire.asia-times (233)
    - newswire.crescent-international (11)
    - newswire.cs-monitor (279)
    - newswire.dawn (3018)
    - newswire.debka (21)
    - newswire.earlybird (2168)
    - newswire.frontierpost (3662)
    - newswire.gulf-daily-news (1279)
    - newswire.haaretz (840)
    - newswire.intl-herald-tribune (3205)
    - newswire.irin
    - newswire.irin-asia (45)
    - newswire.irna (2628)
    - newswire.janes (58)
    - newswire.jerusalem-post (553)
    - newswire.jordan-times (687)
    - newswire.kiev-post (192)
    - newswire.lagos-guardian (969)
    - newswire.lahore-nation (2147)
    - newswire.lebanon-daily-star (774)
    - newswire.middle-east-wire (883)
    - newswire.moscow-times (435)

### Synchronization of Newsgroups on tides2000.mitre.org

To change offline settings, first select a newsgroup, then click Settings

| Newsgroup                         | Unread |
|-----------------------------------|--------|
| disease.hemorrhagic-fever         | 60     |
| disease.measles                   | 42     |
| disease.tularemia                 | 0      |
| epidem-news.promed                | 128    |
| epidem-news.who-disease-outbreaks | 1404   |
| newswire.al-ahram                 | 452    |
| newswire.aliasoft                 | 0      |
| newswire.arabic-news              | 768    |
| newswire.asia-times               | 233    |
| newswire.crescent-international   | 11     |
| newswire.cs-monitor               | 279    |
| newswire.dawn                     | 3018   |
| newswire.debka                    | 21     |
| newswire.earlybird                | 2168   |
| newswire.frontierpost             | 3662   |
| newswire.gulf-daily-news          | 1279   |
| newswire.haaretz                  | 840    |
| newswire.intl-herald-tribune      | 3205   |
| newswire.irin                     | 0      |
| newswire.irin-asia                | 45     |
| newswire.irna                     | 2630   |
| newswire.janes                    | 58     |
| newswire.jerusalem-post           | 553    |
| newswire.jordan-times             | 687    |
| newswire.kiev-post                | 192    |
| newswire.lagos-guardian           | 969    |
| newswire.lahore-nation            | 2147   |
| newswire.lebanon-daily-star       | 774    |
| newswire.middle-east-wire         | 883    |
| newswire.moscow-times             | 435    |
| newswire.national-post            | 319    |



File Edit View Tools Message Help

New Post Reply Group Reply Forward Print

File Edit View Tools Message Help

Cairo . Arab League committee dedicates \$ 55 million per month for Palestinians

Reply Group Reply Forward Print Previous Next Addresses

- Folders
- tides2000.mitre.org
    - \_help
    - \_hotbox (7)
    - disease.hemorrhagic-fever (60)
    - disease.measles (42)
    - disease.tularemia
    - epidem-news.promed (128)
    - epidem-news.who-disease-outbreak
    - newswire.al-ahram (452)
    - newswire.aliasoft
    - newswire.arabic-news (767)
    - newswire.asia-times (233)
    - newswire.crescent-international (11)
    - newswire.cs-monitor (279)
    - newswire.dawn (3018)
    - newswire.debka (19)
    - newswire.earlybird (2168)
    - newswire.frontierpost (3662)
    - newswire.gulf-daily-news (1279)
    - newswire.haaretz (840)
    - newswire.intl-herald-tribune (3205)
    - newswire.irin
    - newswire.irin-asia (45)
    - newswire.irna (2628)
    - newswire.janes (49)
    - newswire.jerusalem-post (468)
    - newswire.jordan-times (583)
    - newswire.kiev-post (184)
    - newswire.lagos-guardian (769)
    - newswire.lahore-nation (1881)
    - newswire.lebanon-daily-star (684)
    - newswire.middle-east-wire (660)

- Subject
- Yemen .
  - US . The
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  - Sudan . I
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  - Jeddah .
  - Israel . S
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  - Iraq-Kuv
  - Egypt . J
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  - Cairo . Et
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  - Australia
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  - aggressi
  - Sudan . t
  - Palestin

**From:** arabic-news . Arabic News  
**Organization:** TIDES IFE-Bio  
**Date:** Monday, 11 March, 2002 15:57  
**Newsgroups:** general,newswire.arabic-news  
**Subject:** Cairo . Arab League committee dedicates \$ 55 million per month for Palestinians

|                  |  |
|------------------|--|
| Original Subject | Arab League committee dedicates \$ 55 million per month for Palestinians |
| Original Date    | 11 Mar 2002 15:57:40 (EST)   |
| Original Sender  | Arabic News (arabic_news@tides2000.org)                                  |

[Color Key](#) [\[Original Document\]](#)

Regional-Palestine, Politics, 3/11/2002

The **Palestinian International** cooperation minister **Nabil Shaath** has announced that the follow up committee of implementing the **Cairo** summit resolutions, held at the headquarters of the **Arab League** in **Cairo** approved giving **USD 55 million** per month for the Palestinian authority along the current year.

A source at the **Arab League** said that the committee which held its meeting under the chairmanship of the Jordanian foreign minister **Marwan al-Mashaar**, prepared a final report to be submitted to the **Beirut's** summit on following up the implementation of **UN** resolutions on supporting the Intifada. The report said that the volume of financial support which arrived in **al-Aqsa** and **Jerusalem Funds** reached **USD 677.7** out of **USD 693** million, some 12 Arab states vowed to give to the two F of the **USD** one billion, approved by the **Cairo** summit in 2000.

The report added that the sums sent to the Palestinian reached until this March **USD 430** million.

The Arab follow up committee decided in a meeting in June to increase the annual payment from **USD 40** million to **USD 45**



# TIDES World Press Update

12 March 2002

## FBIS Edition

This edition contains articles from the Foreign Broadcast Information Service (FBIS).  
Distribution is limited to the U.S. Government agencies and their contractors.

FOR OFFICIAL USE ONLY

[TIDES@Carebridge.org](mailto:TIDES@Carebridge.org)

<http://www.carebridge.org/~tides>

## ARTICLES OF SIGNIFICANT IMPORT

11 March

[A tradition of peace: A look at Islamic law](#), JAKARTA POST (Jakarta, Indonesia):

Abdurrahman Wahid, Former President Republic of Indonesia, Jakarta, writes, I was recently asked to address a conference in Seoul, Korea, organized around the theme of developing a culture of peace. Naturally, it fell to me to present an Islamic perspective on developing a culture of peace. My response was to explain that if we want to understand what Islam has to teach us about civilization, society and relations between communities, it is important that we consider the broad range of its rich intellectual heritage.

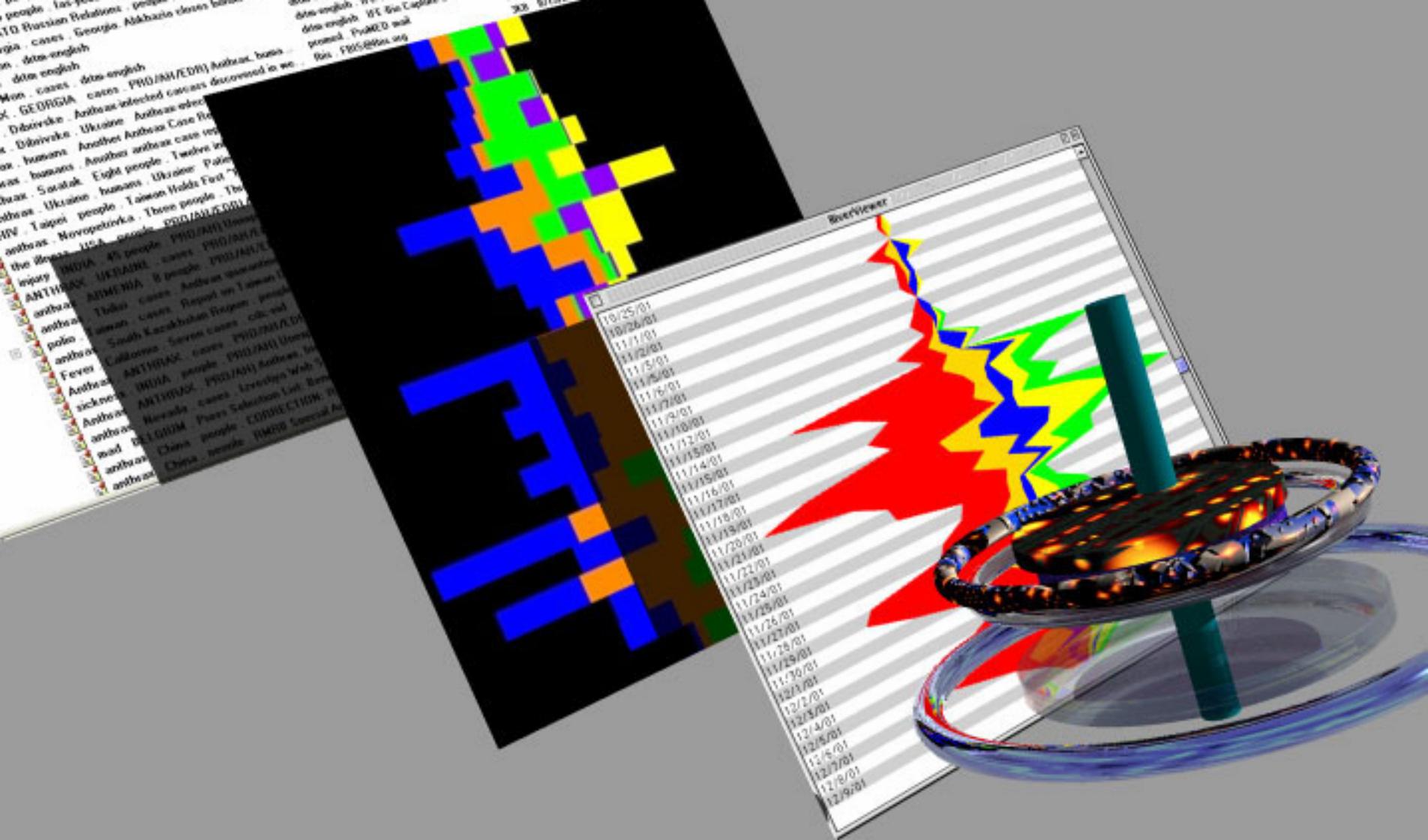
[Analysis / The attack on Iraq begins in Ramallah](#), HA'ARETZ (Tel Aviv, Israel):

The spring calendar does not encourage an American attack against Iraq. The Arab League meets in two weeks in Beirut; and, under current circumstances, the group is not a forum that will support an attack on Iraq or the removal of an Arab leader. Such Arab League skepticism is augmented by U.S. support for Israeli policy. While Cheney is asking for Arab "understanding" for the American administration's opposition to Iraq, Israel has killed more than 50 people in the territories. This is not a propitious diplomatic moment for the U.S. vice president in the Middle East, since it is a time when Washington has displayed insufficient sympathy for Palestinian suffering.

[Change of Iraqi regime 'must come from within military'](#), DAILY STAR (Beirut, Lebanon):

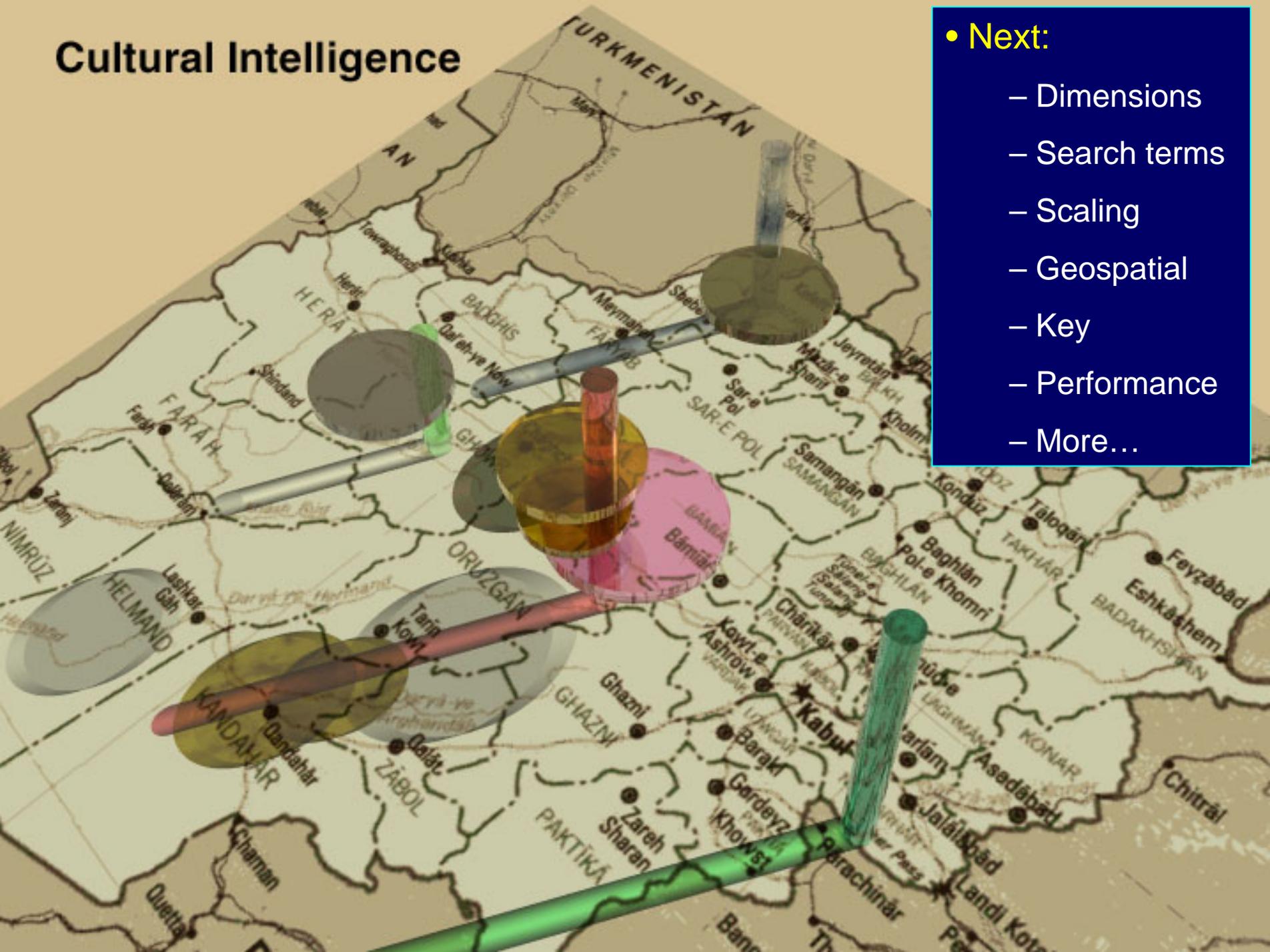
Most of the "scenarios" aired in the media concur that air and missile strikes alone will not topple Iraqi President Saddam Hussein's regime, and that this will require a



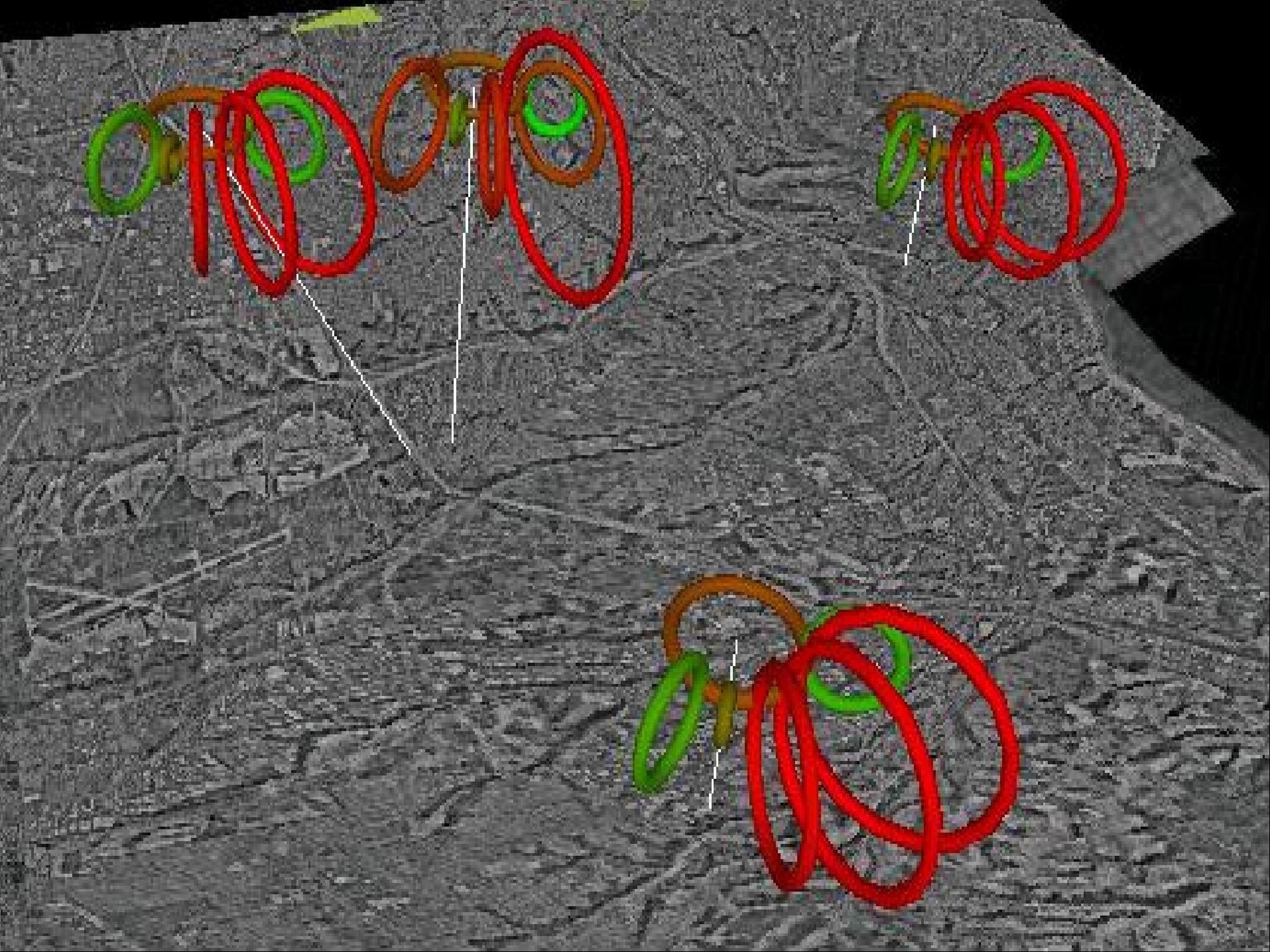


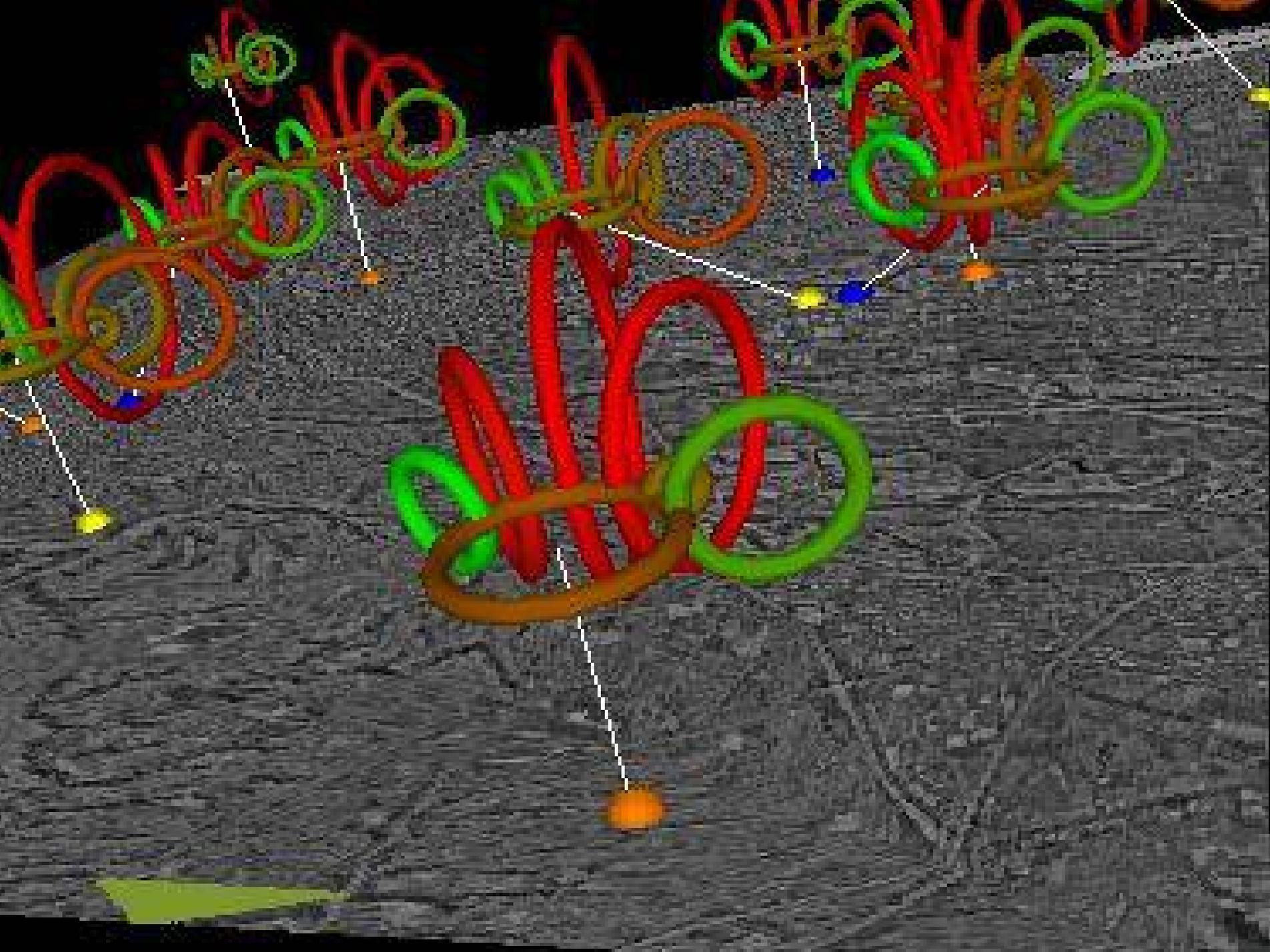
## Text to Dynamic Rendering

# Cultural Intelligence



- Next:
  - Dimensions
  - Search terms
  - Scaling
  - Geospatial
  - Key
  - Performance
  - More...





# Burning Man







**SHADOWBOWL**  
**2003**



AAAADIALHO

QUALCOMM  
STADIUM

SUPER BOWL







Qualcomm Stadium



512 K  
Ku-Band Satellite



155 Mbit Laser

3 Mbit RF Point to Point



River Site (Interworks Bldg)



SDSU Vizualization Lab (Tunnel)

# SHADOWBOWL 2003

**Medical Reach Back Sites**

**CTIN**  
Counter Terrorism  
Information Network

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**UVA**  
Karen Rheuban

**SUNY**  
Jo Ann Shupe

**USA**  
Carl Taylor

**ECU**  
Gloria Jones

**VCU MITAC**

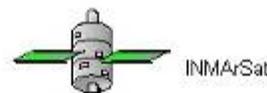
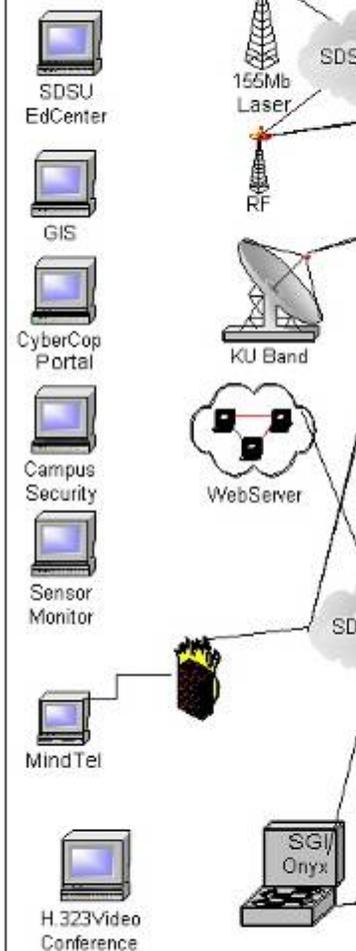
**MedBridge**  
Steve Holstein

**Discoll**  
Texas

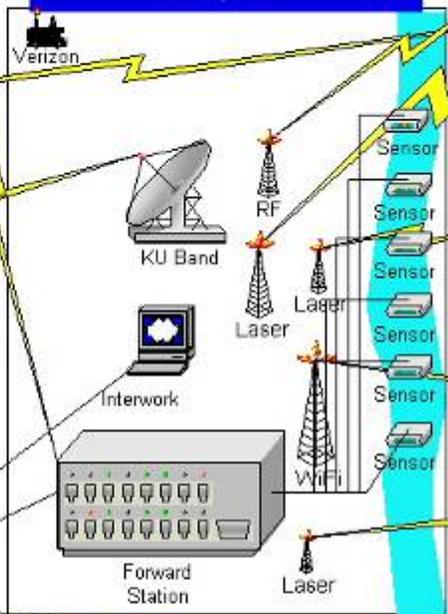


H.323 Video  
Conference

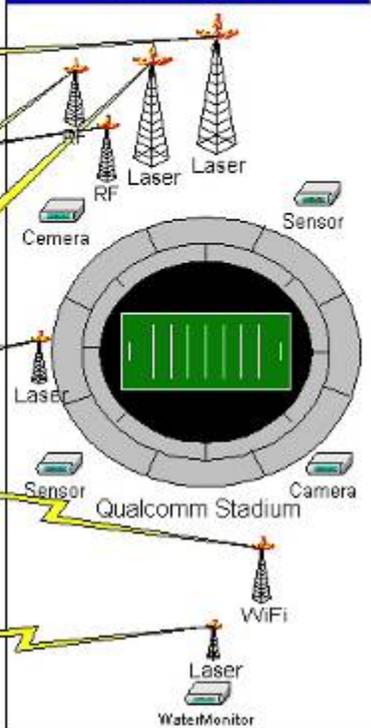
**Tunnel 1 SDSU Vis Lab**



**River Op Center**



**Qualcomm Stadium**



**San Diego Super Computing Center**



Public Internet

VPN Connection

1Gb Redundant Internet Connections

TeraBurst OC48 (KVM Audio Data)

SDSU Viz Lab

John's Hopkins

Qualcomm Stadium



Denver Health's  
Rocky Mountain Center  
for Medical Response



East Carolina  
University





**GPS Satellites**



**Sensors**

- Fire**
- Pathogens**
- Weather**
- Radiation**
- Chemical**
- Water**
- Thermal**



**SHADOWBOWL**







Union Station  
Season Ticket







EXIT

Switching Solutions  
Networks

TERABURS  
NETWORKS

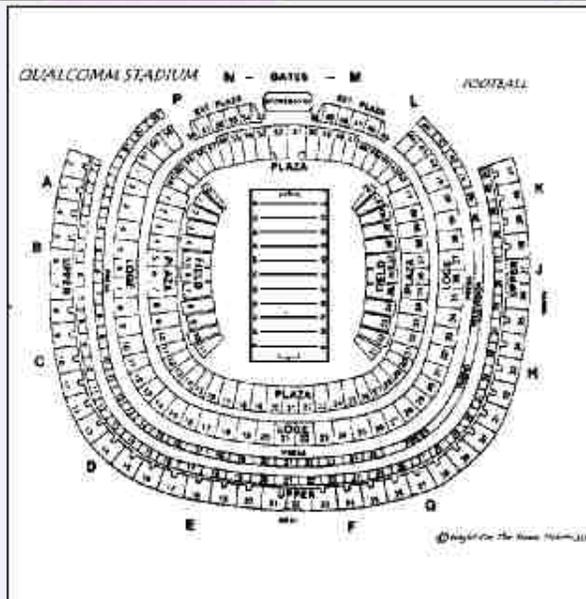
Optical Core Switching  
The  
A Price Performance



[Untitled]

New Sketch

1 of 8



Navigation bar with buttons: Large Maps, Close Stadium Area, Closer Stadium Area, Stadium Street Area, Seating Map (1), Overview, CVIDEO, Add Tool, Wal... (2), Alerts (2), Incidents, Refere..., Pho... (2), Comme..., Contacts, We... (1), Casualties, Medical Re..., Ma... (1), Add Tool

Conversation

Hold-to-Talk [Phone Icon] Hide Chat (6) [Headset Icon]

Lookin' pretty good to us in Tampa.  
*steve birch*: 1/29/03 7:18 PM  
 acoustic monitoring online; depending on cable and network card  
*Robert Kirkpatrick/Groove*: 1/29/03 7:31 PM  
 how is this accessed?  
*steve birch*: 1/29/03 7:36 PM  
 viewable on <http://Miz.mindtel.com/bob/screen11.html> but the laptop connection has died so there is nothing there now

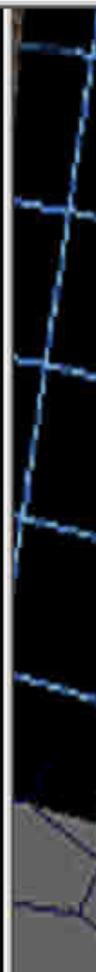
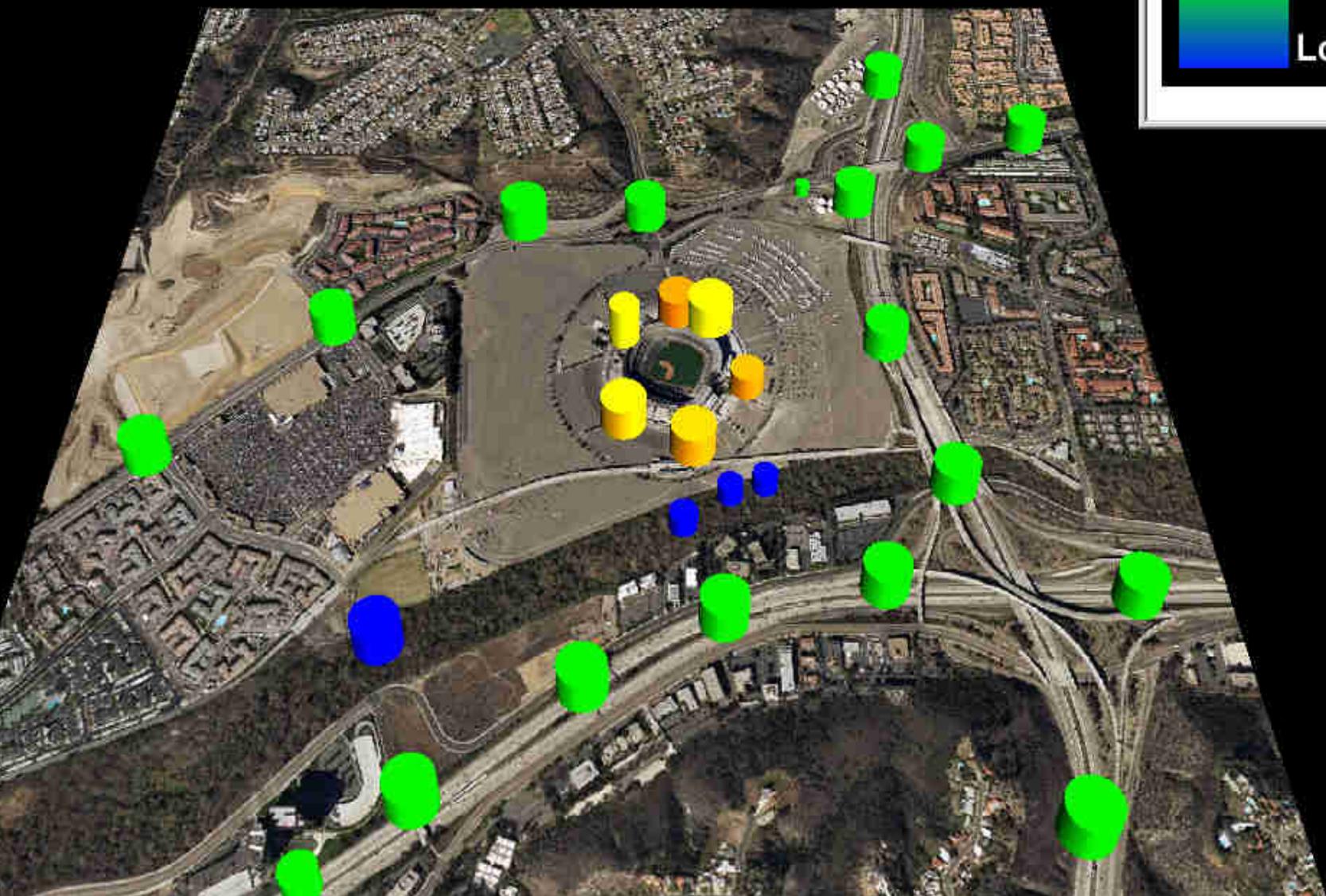
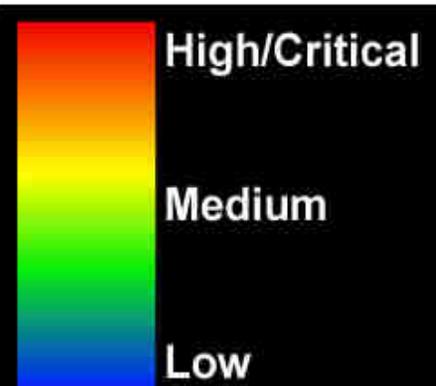
Navigate Together

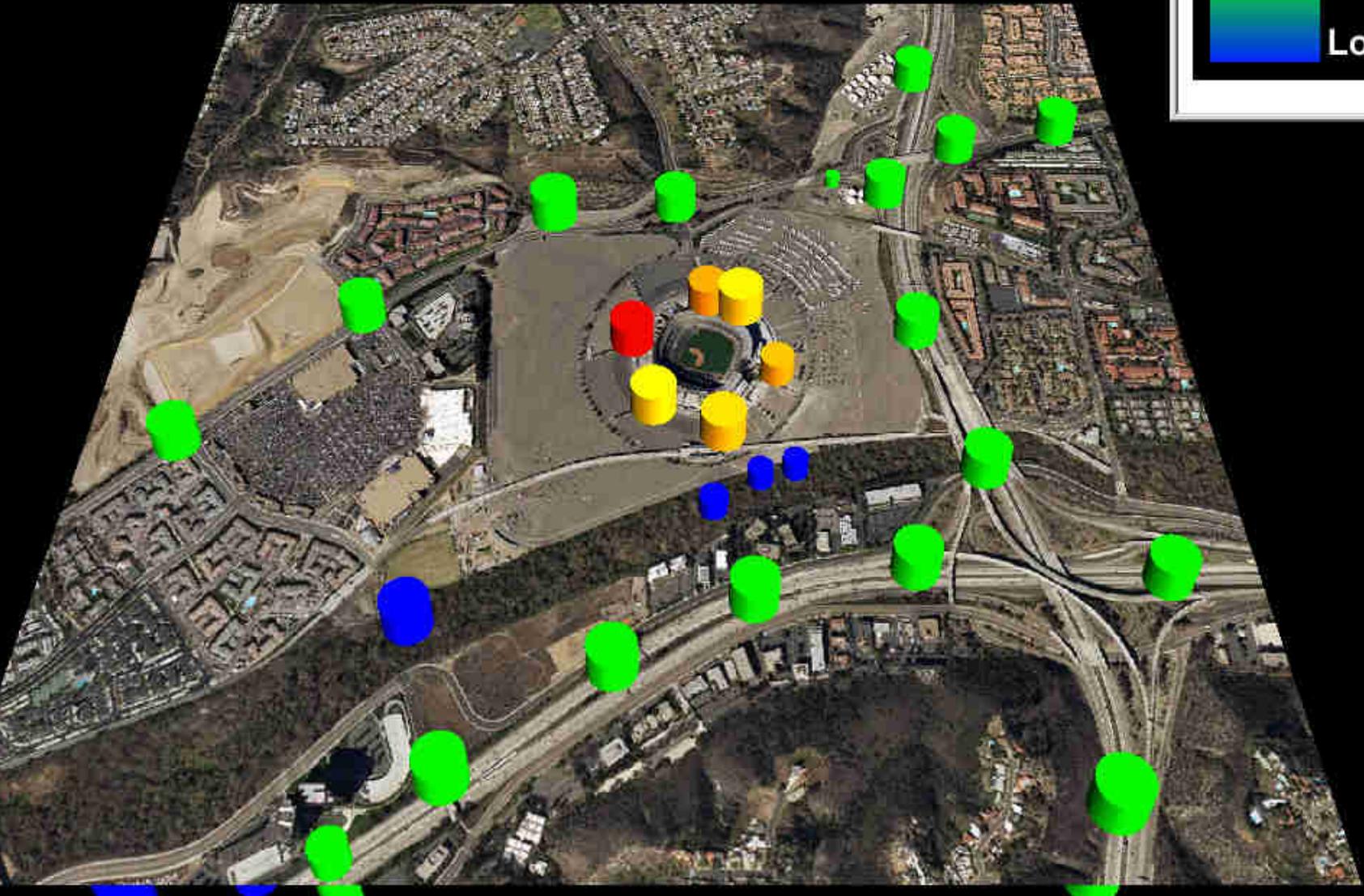
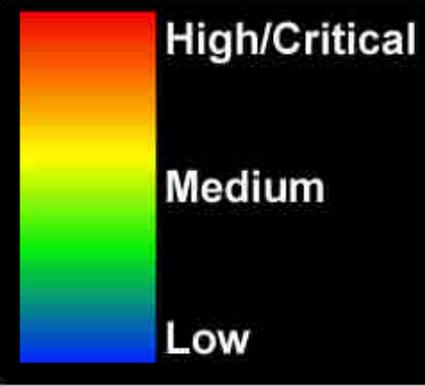
Send Options



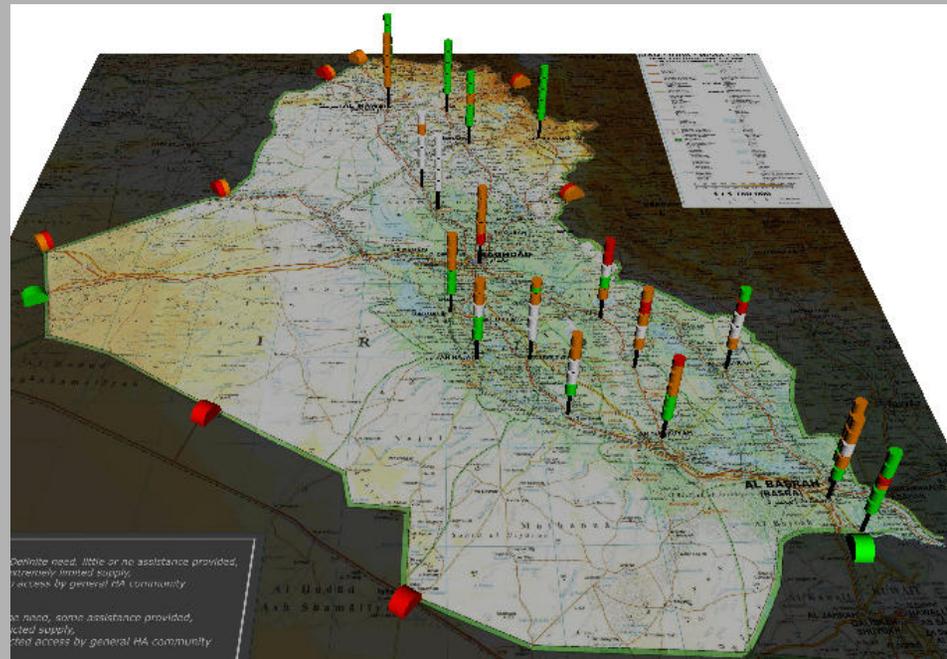
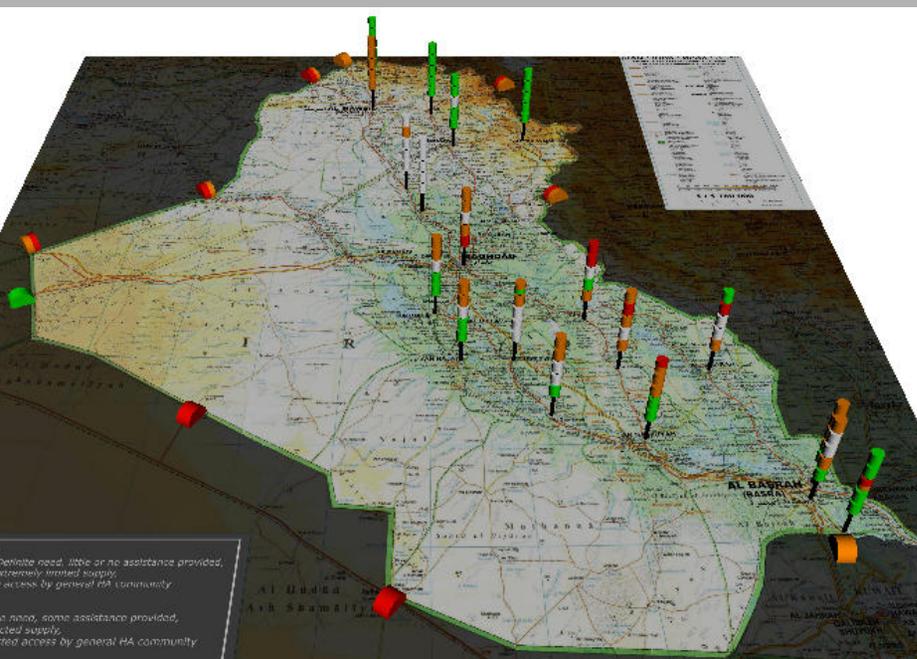
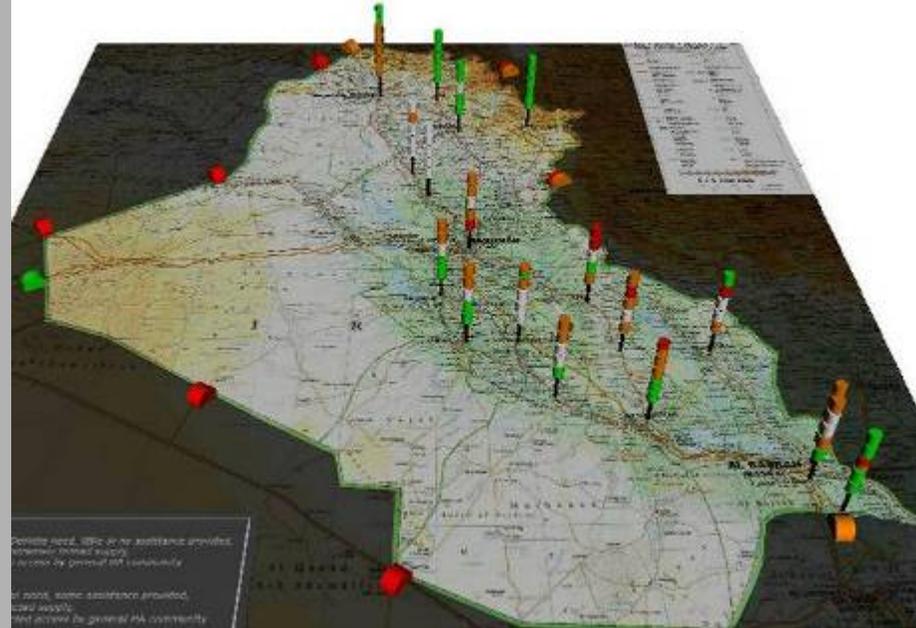
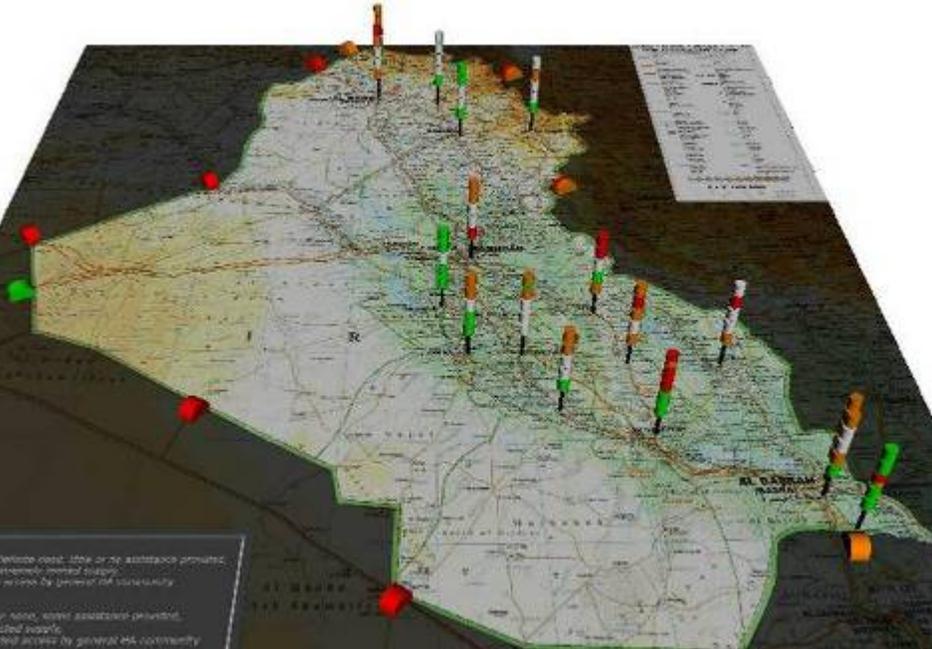
Marked Sites

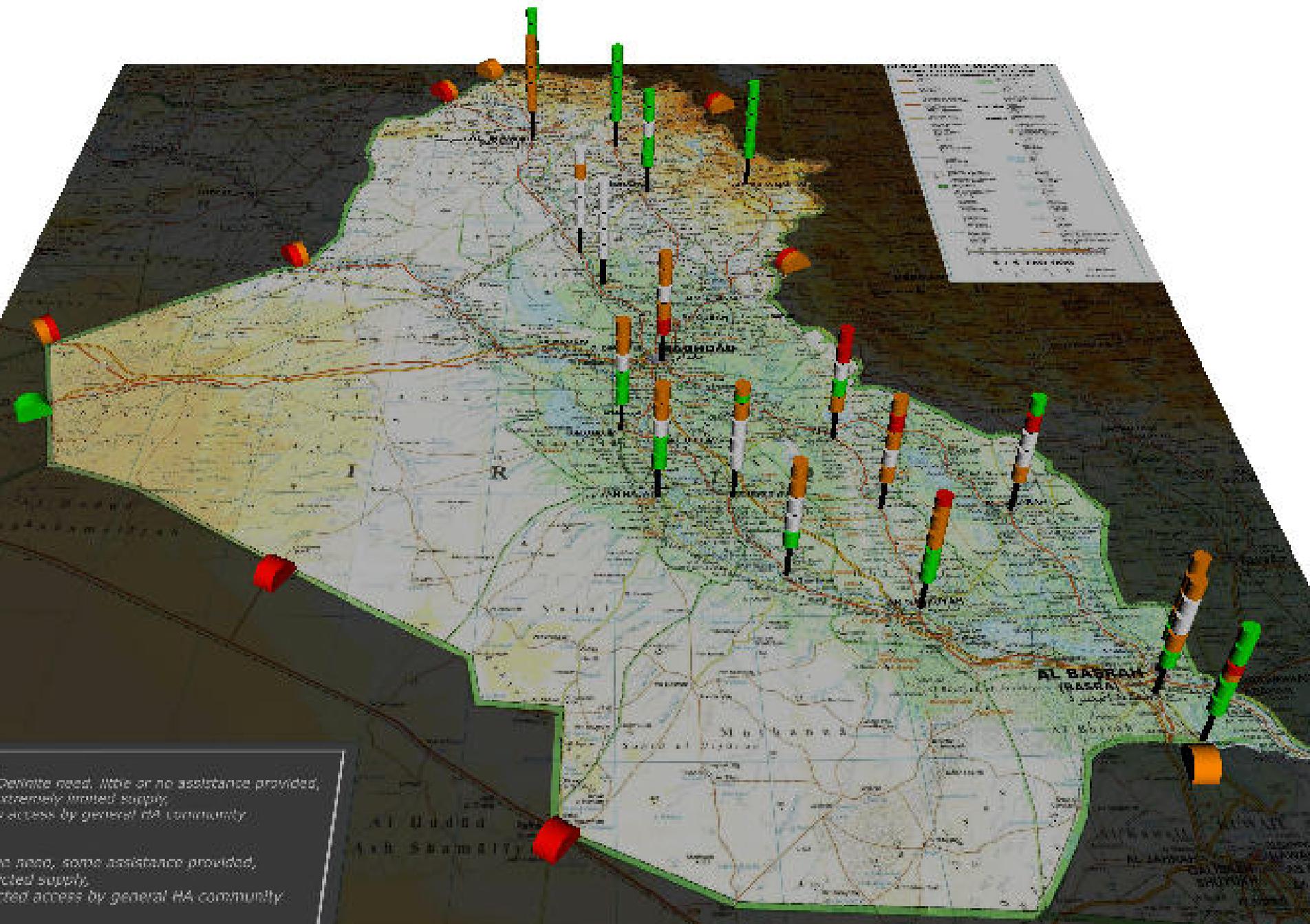












| Legend       |  |
|--------------|--|
| [Red Pin]    | Definite need, little or no assistance provided, extremely limited supply, restricted access by general HA community |
| [Orange Pin] | Definite need, some assistance provided, limited supply, restricted access by general HA community                   |
| [Green Pin]  | Definite need, some assistance provided, limited supply, unrestricted access by general HA community                 |
| [White Pin]  | No definite need   |

Definite need, little or no assistance provided, extremely limited supply, restricted access by general HA community

Definite need, some assistance provided, limited supply, restricted access by general HA community





























40KW

 **United  
Rentals**

**DANGER**  
HIGH VOLTAGE

UNIVERSITY











AUG 28 2003







AUG 29 2003





# Operation Desert Bloom

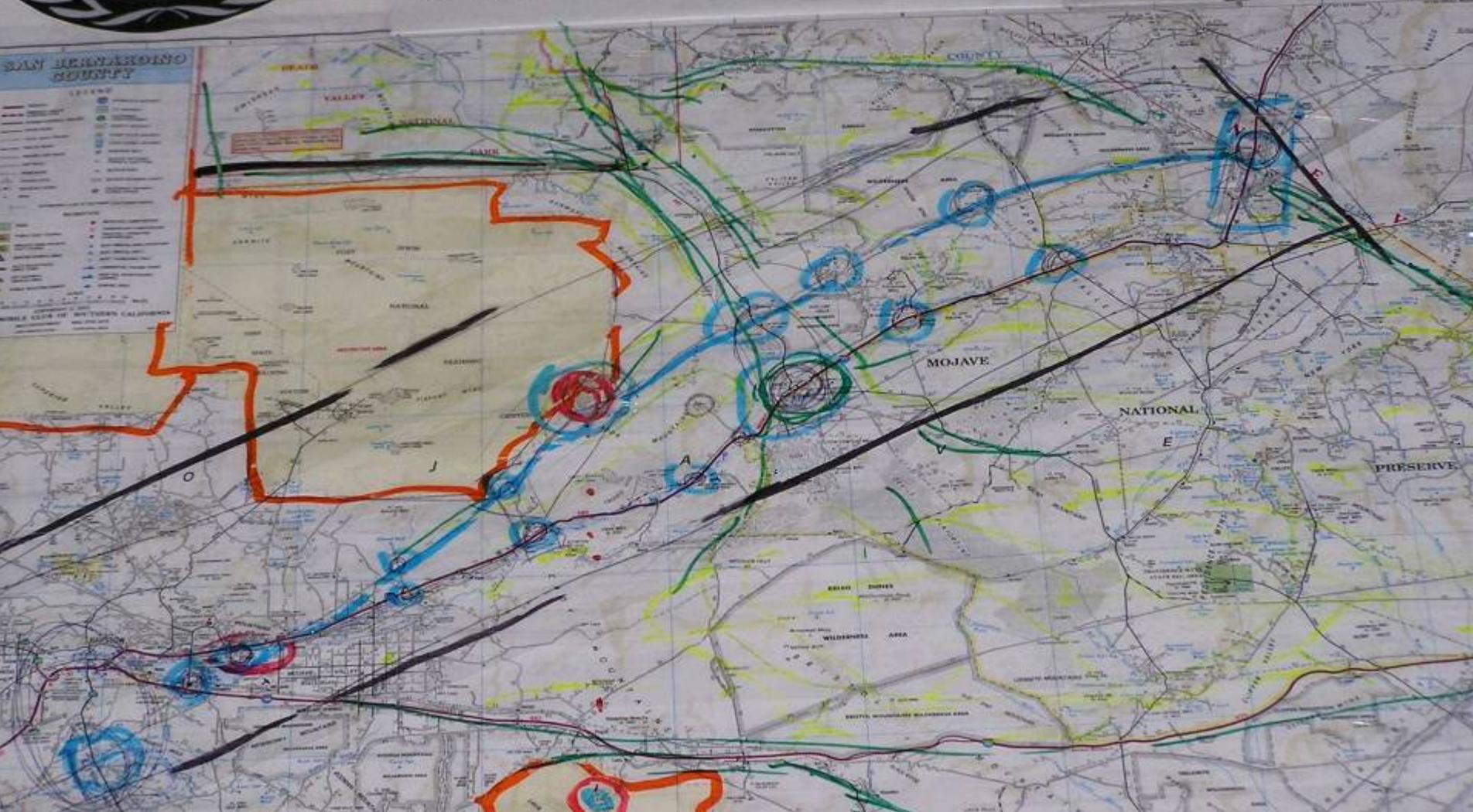




# OPERATION DESERT BLOOM

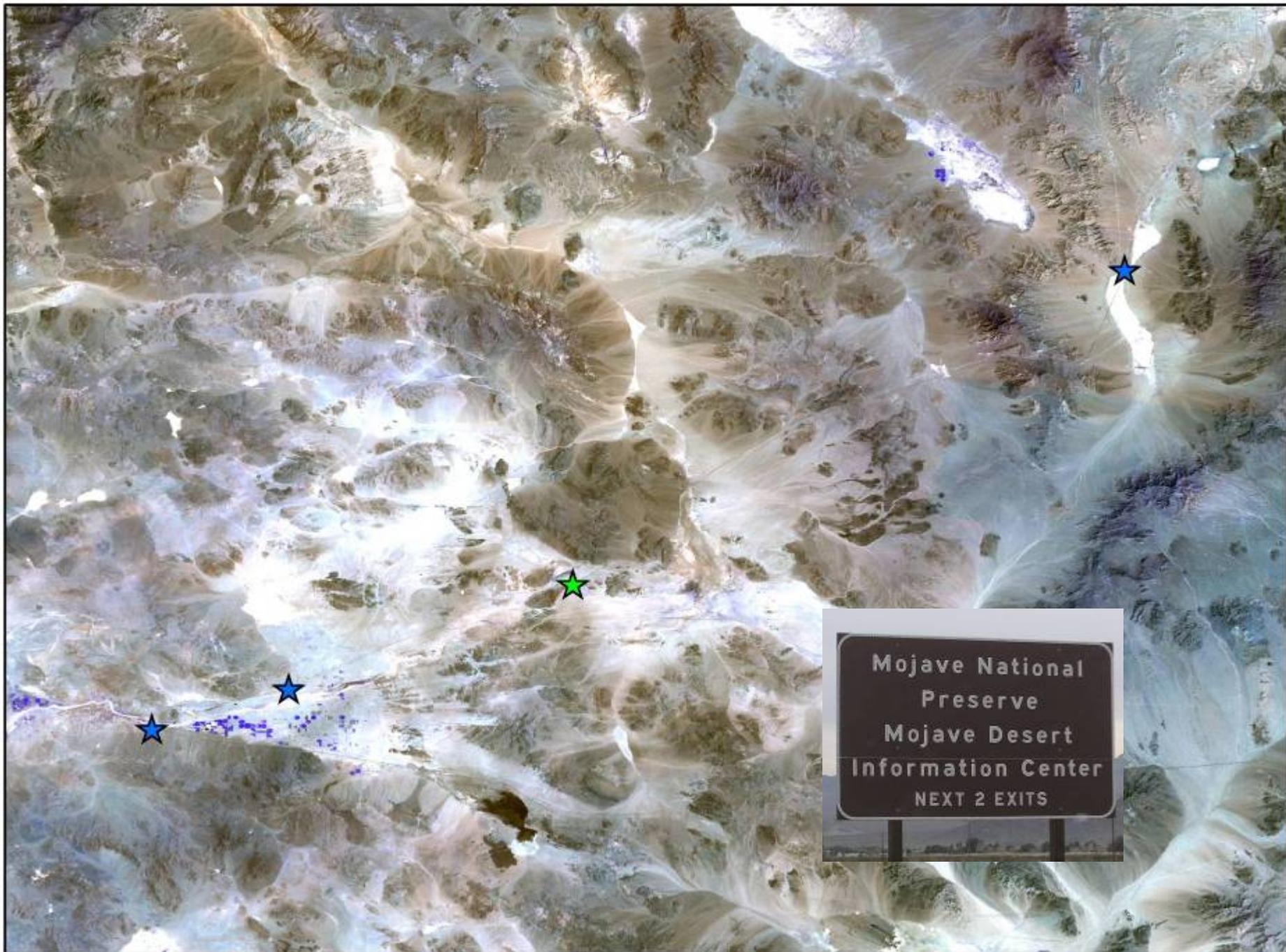
A CIV MIL CYBER SOCIAL SYNERGY OP

KNOWLEDGE GROWS WHERE INFORMATION FLOWS



# Synergy Strike Force

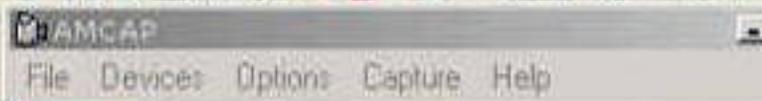
- Inter-disciplinary group dynamically assembled to catalyze a shadow operation
- Creates new -- and enhances existing – human and organizational relationships and communications networks to create a “network centric” operational baseline.



Mojave National  
Preserve  
Mojave Desert  
Information Center  
NEXT 2 EXITS



35.21827 116.39012



















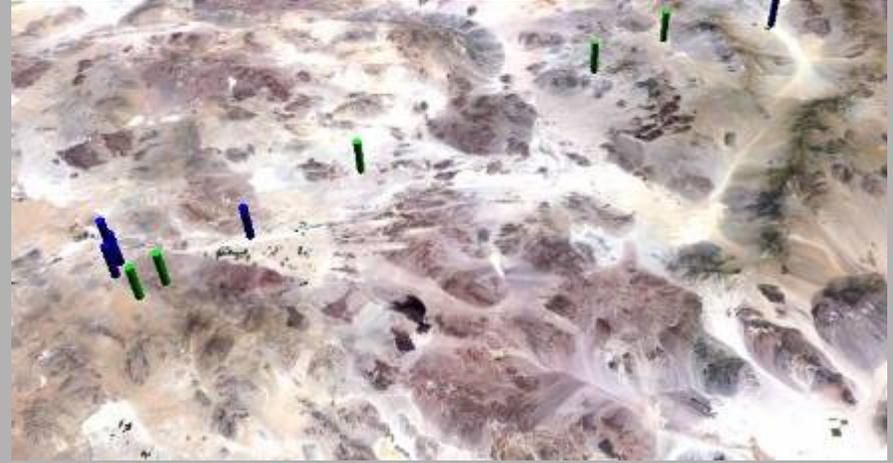


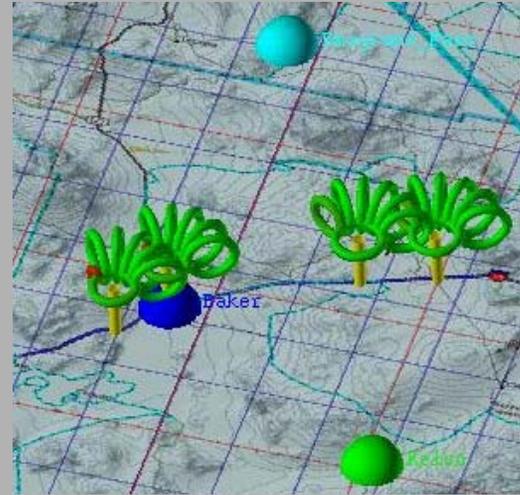
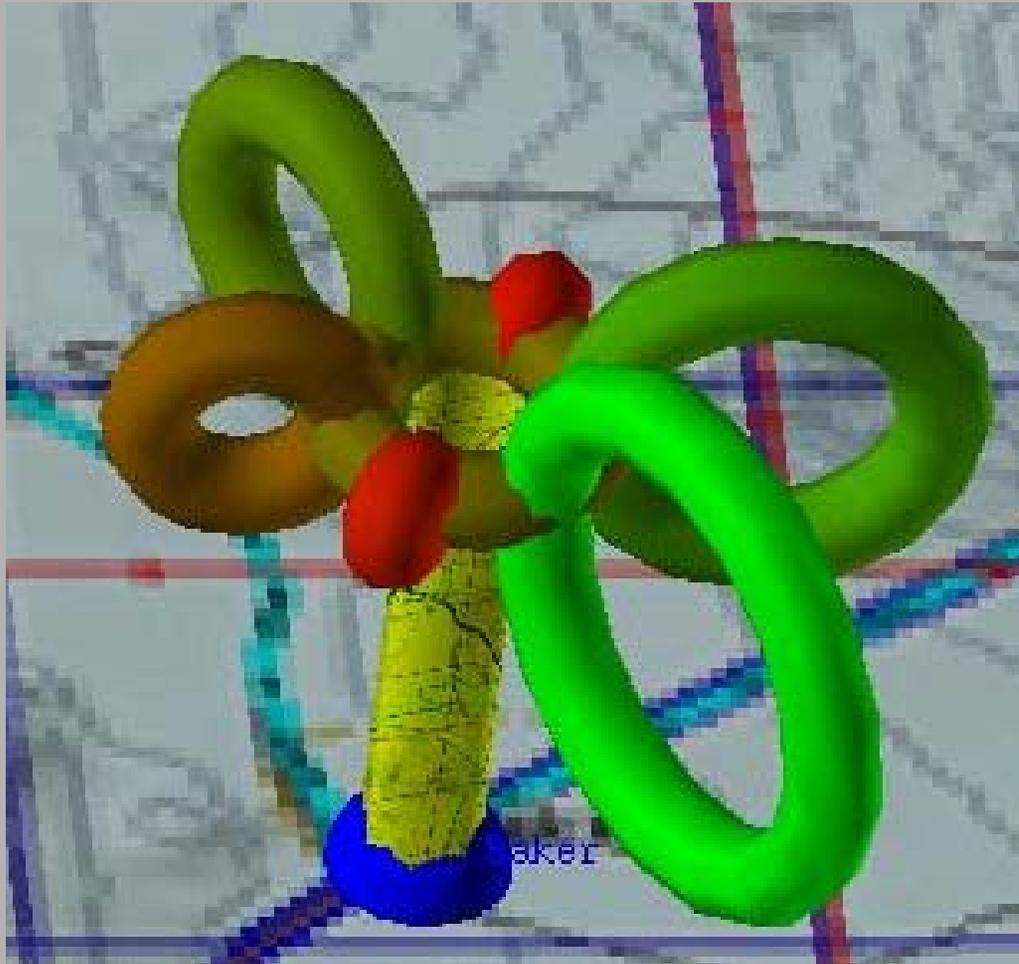














"Design and implement a far-forward capacity for rapid and appropriate humanitarian information management from global resources within and across civil-military boundaries."

ASD-NII (Acting)

## Strong Angel II

Reliable communication  
Resilient power  
Cultural awareness  
Translation support



Tasks addressing practical Iraq War issues in collaboration and understanding...



Afghanistan



WELCOME TO KABUL  
به کابل خوش آمدید

ما خواهان صلح و وحدت ملی در سرتاسر کشور عزیز ما هستیم  
مردم به قول هیواد کنی د ملی یو والی او سو گالی شو متونگی یو

We want peace and national unity throughout our country

A.I.R  
Representation Afghan Investment company

اعمال شرکت سرمایه گذاری افغان انویسمنٹ کمپنی

national unification  
social justice









اسپیٲوت صحت طفل  
بنام  
اندر اگانءی

۱۱ اءت ۱۵ ۱۳۱۳/۵/۲۳

THE INSTITUTE OF CHILD  
HEALTH

IS NAMED AFTER

INDIRA GANDHI (1917-1984)

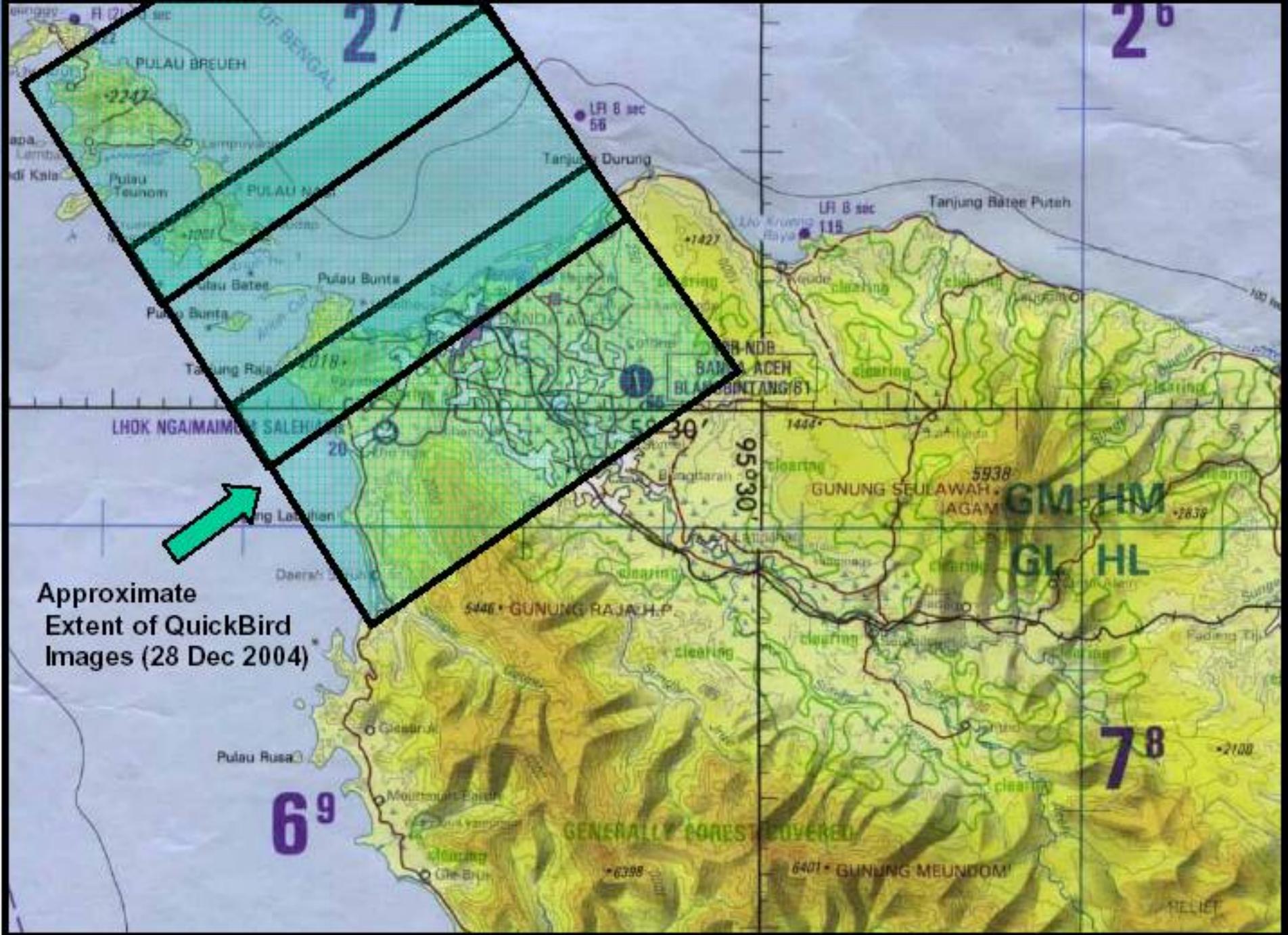
TIDES



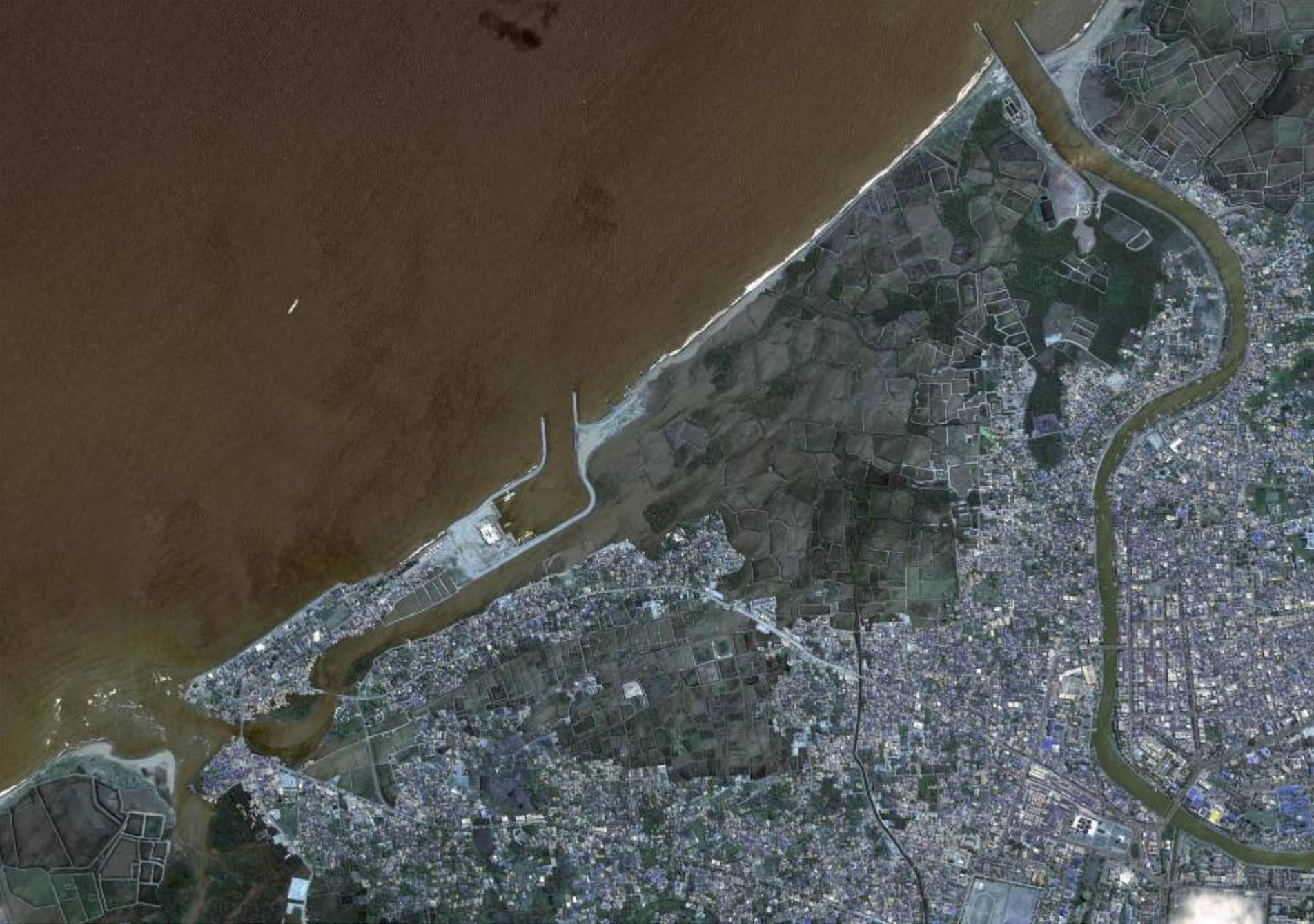


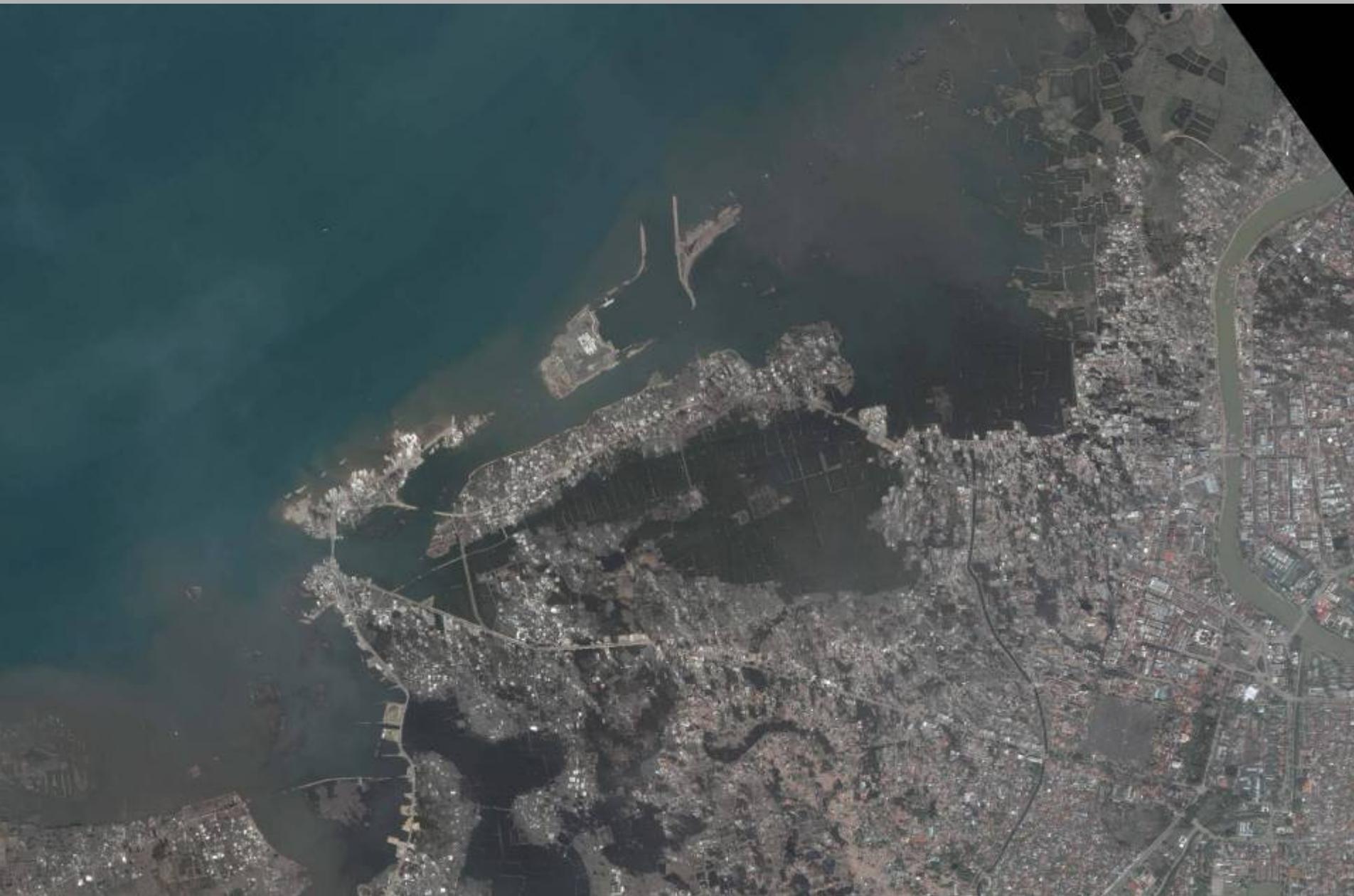






Approximate  
Extent of QuickBird  
Images (28 Dec 2004)







QuickBird Natural Color Image  
23 June 2004

Heavily Eroded Shoreline

Missing  
Shoreline

Completely  
Destroyed Buildings

QuickBird Natural Color Image  
28 December 2004





QuickBird Natural Color Image  
23 June 2004



Massive Piles  
of Debris

Flooded  
Areas

Flooded  
Areas

QuickBird Natural Color Image  
28 December 2004



QuickBird Natural Color Image  
28 December 2004









































AUSTRALIA













# Core Elements Considered for Experimental Representational Methodologies

## *Geo referenced grid*



UNCLASSIFIED//LIMDIS//FOUO

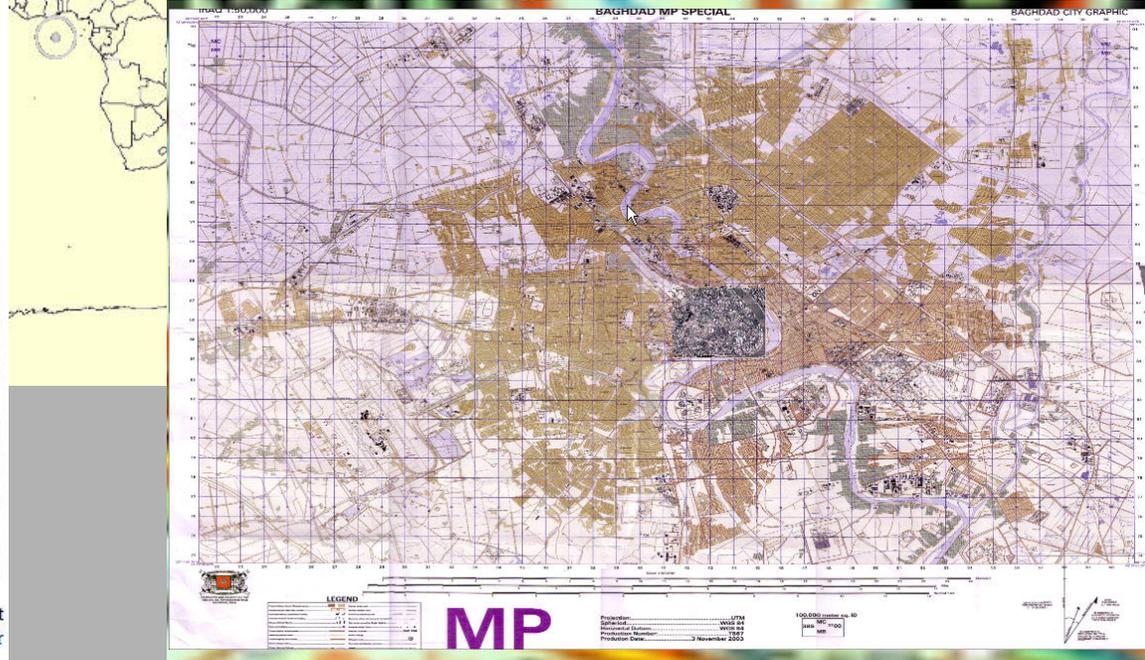
Reconstruction Operations Center  
C2 Cell  
[c2@rocbaghdad.com](mailto:c2@rocbaghdad.com)

Daily Intelligence Summary Iraq – Monday 04 July 2005

Reporting Period: 022000 July - 032000 July 2005

### Overview

Activity countrywide has generally remained at the same level as past weeks. Significant events which occurred during this review period include the kidnapping of the top EGYPTIAN diplomat in BAGHDAD, a suicide vest against IPS recruiting in BAGHDAD as well as a VCIED. There was a VBIED in AL HILLAH. As the AMERICAN Independence Day falls on Monday, attacks against MNFI and other perceived westerners may rise, as the 4<sup>th</sup> of July is a major AMERICAN holiday.



*Textual data from documents*

*Operational maps and imagery*



# Geo referenced back plane for uniform mapping



Any GPS data or map coordinates can be converted and used as inputs

# General Concept Overview



Events (incidents) and entities occur in space and over time

There are multiple parameters of interest for each event/entity

**What is it?**

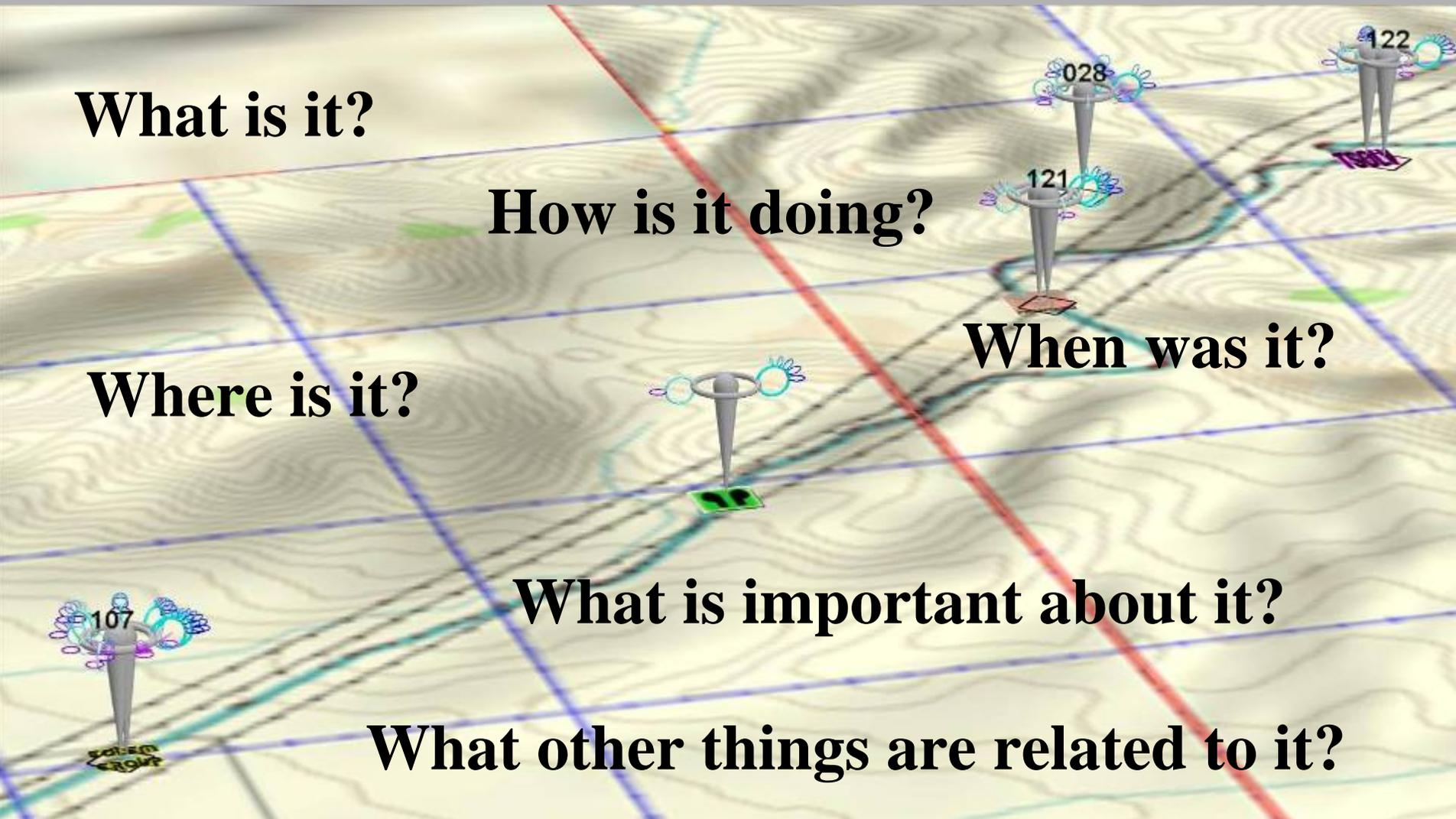
**How is it doing?**

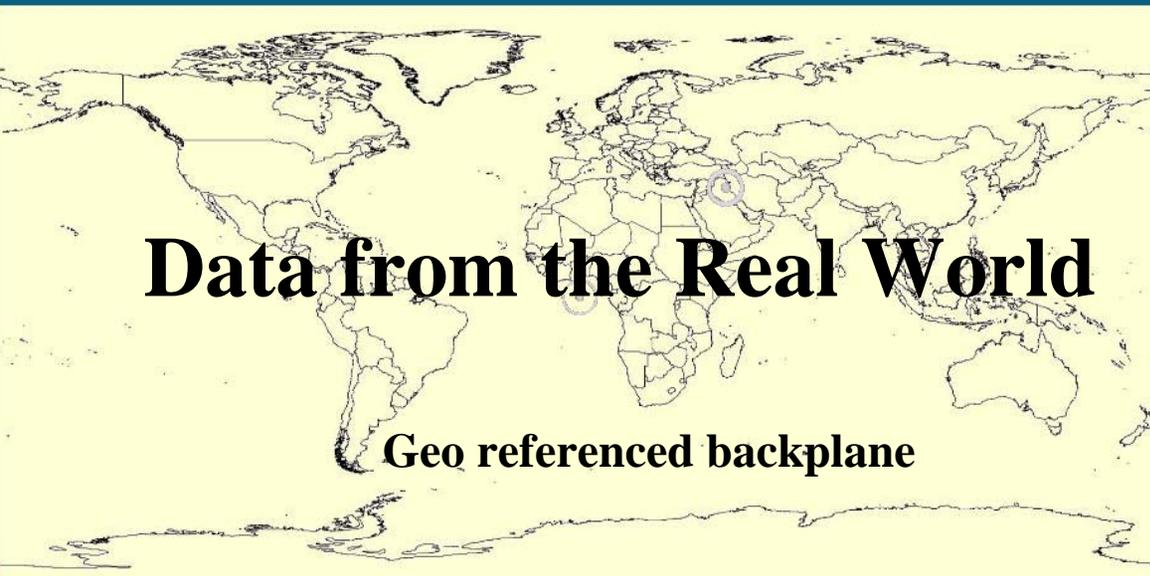
**Where is it?**

**When was it?**

**What is important about it?**

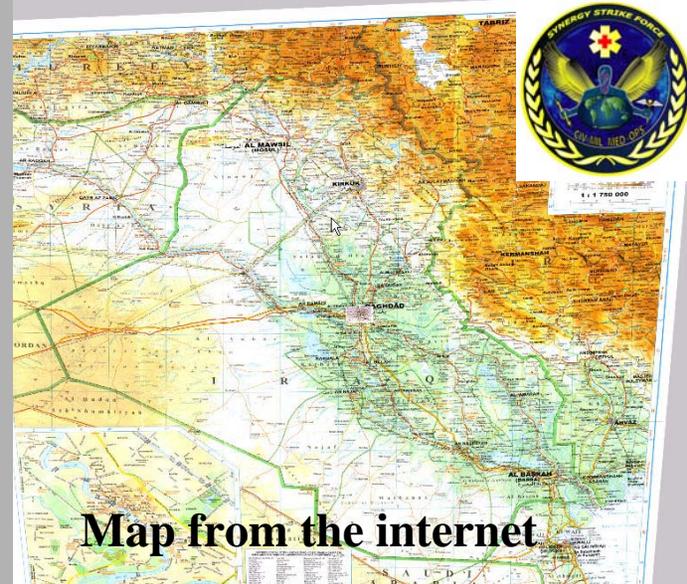
**What other things are related to it?**





# Data from the Real World

Geo referenced backplane

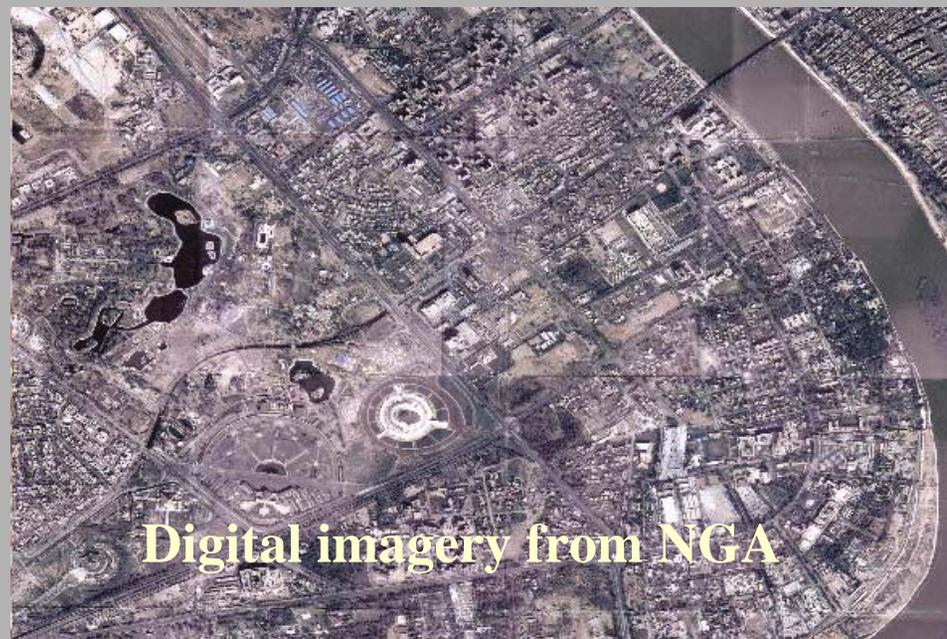


Map from the internet

Maps and images can come from different sources



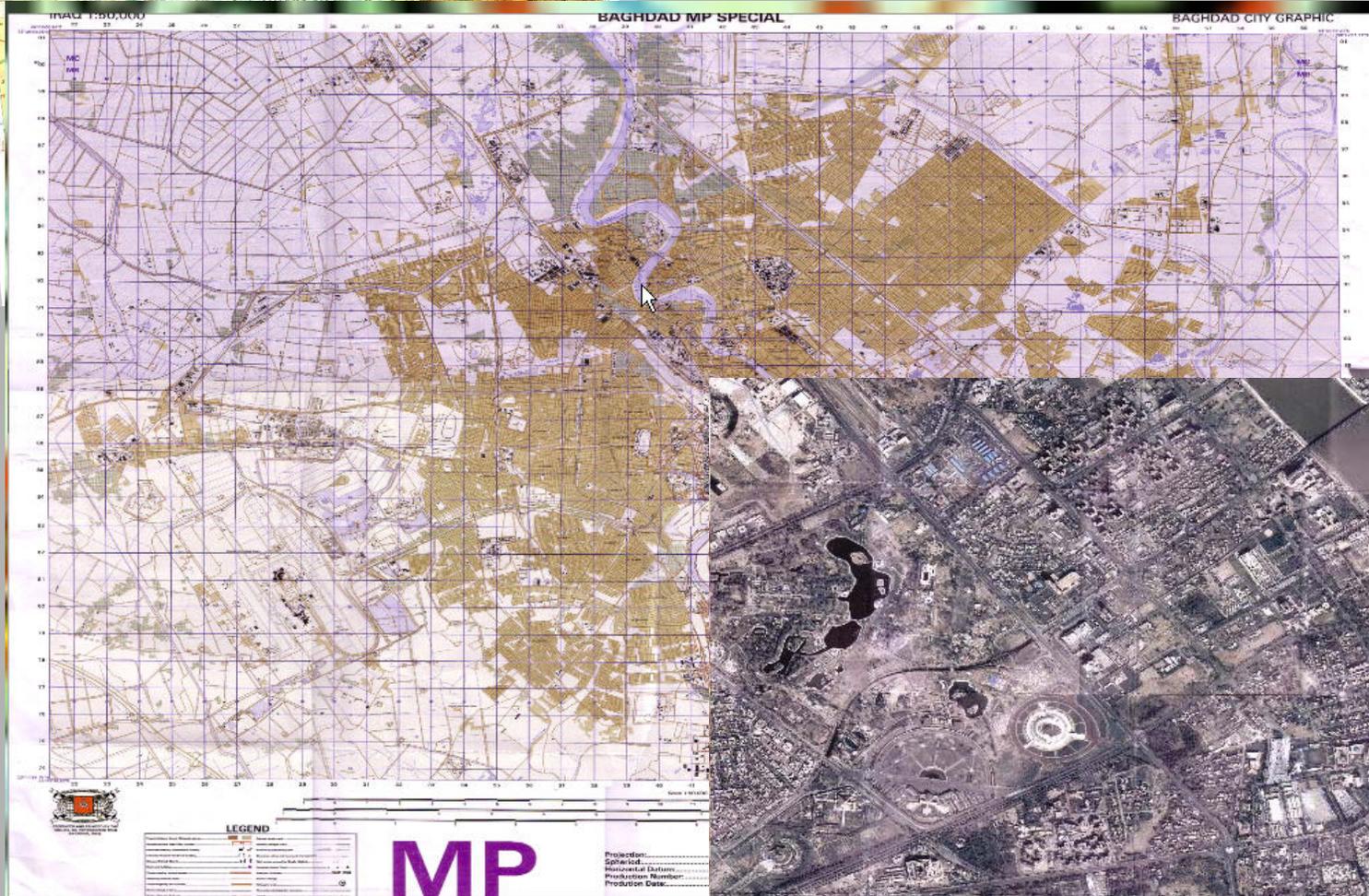
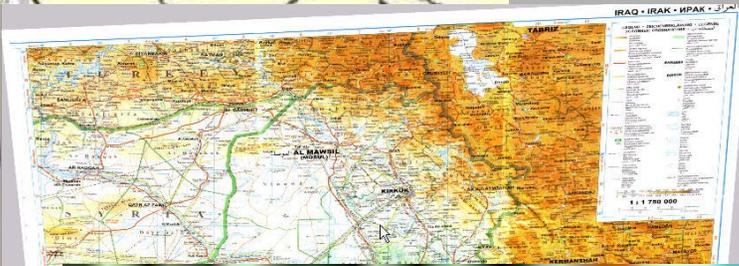
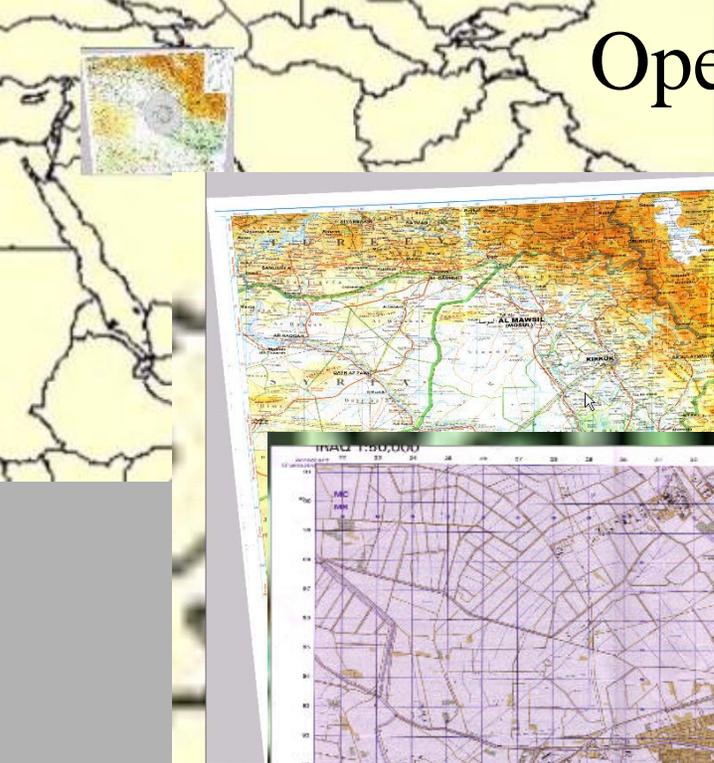
Digital photo of Operational map



Digital imagery from NGA

# Operational Utility

Maps can be applied to the geo referenced backplane by either hard coded coordinate locks or “eyeballed” for field expedient use



Reconstruction Operations Center  
C2 Cell  
[c2@rocbaghdad.com](mailto:c2@rocbaghdad.com)

Daily Intelligence Summary Iraq – Monday 04 July 2005

Reporting Period: 022000 July - 032000 July 2005

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HILLAH. As the AMERICAN Independence Day falls on Monday, attacks against MNFI and other perceived westerners may rise, as the 4<sup>th</sup> of July is a major AMERICAN holiday.



# Textual Documents

## As

# Data Source

Data to be plotted on the fused maps comes from the daily ROC brief

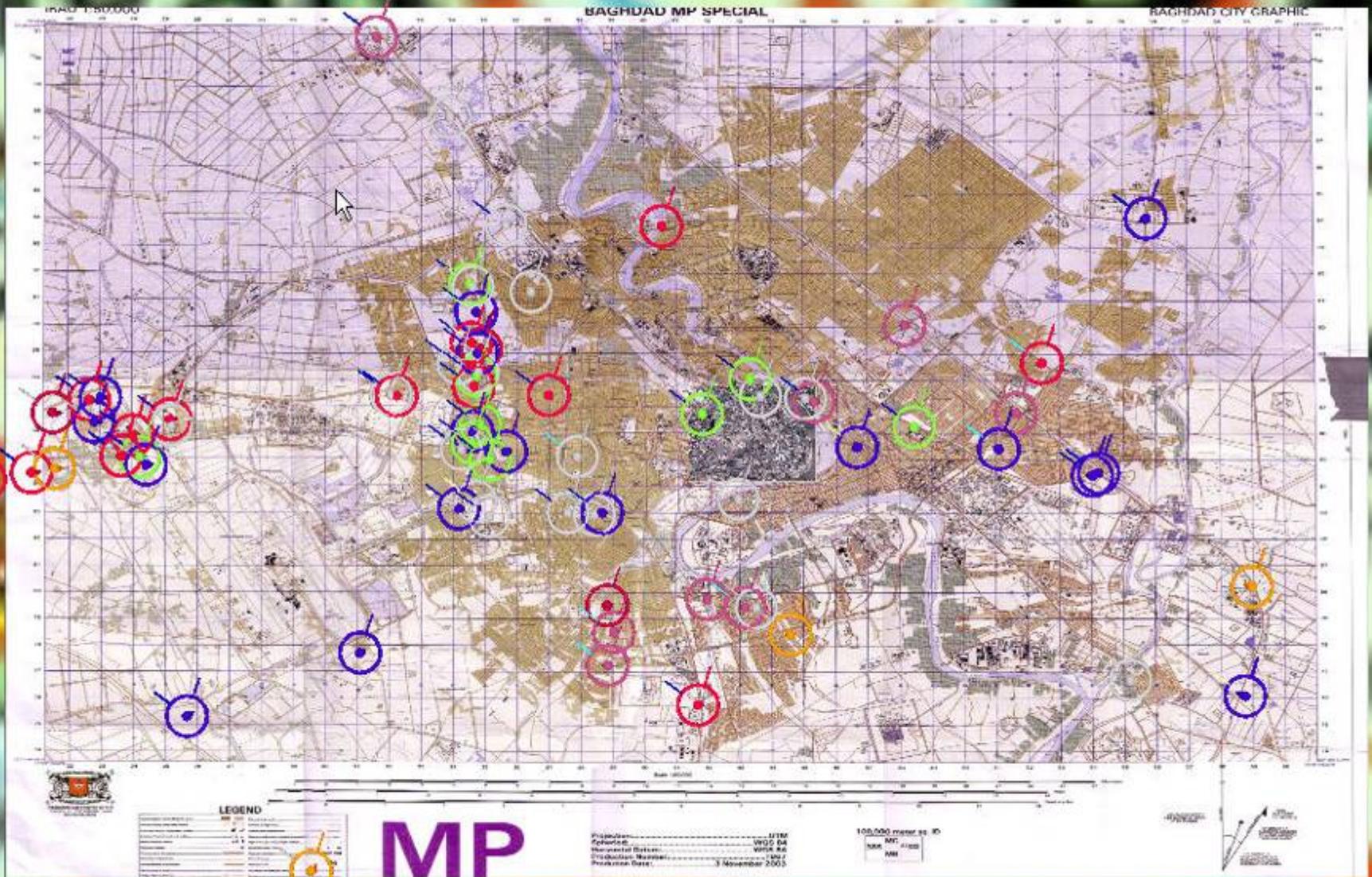
The daily intsum brief is parsed and sigacts are extracted

# Example data extracted from the ROC brief

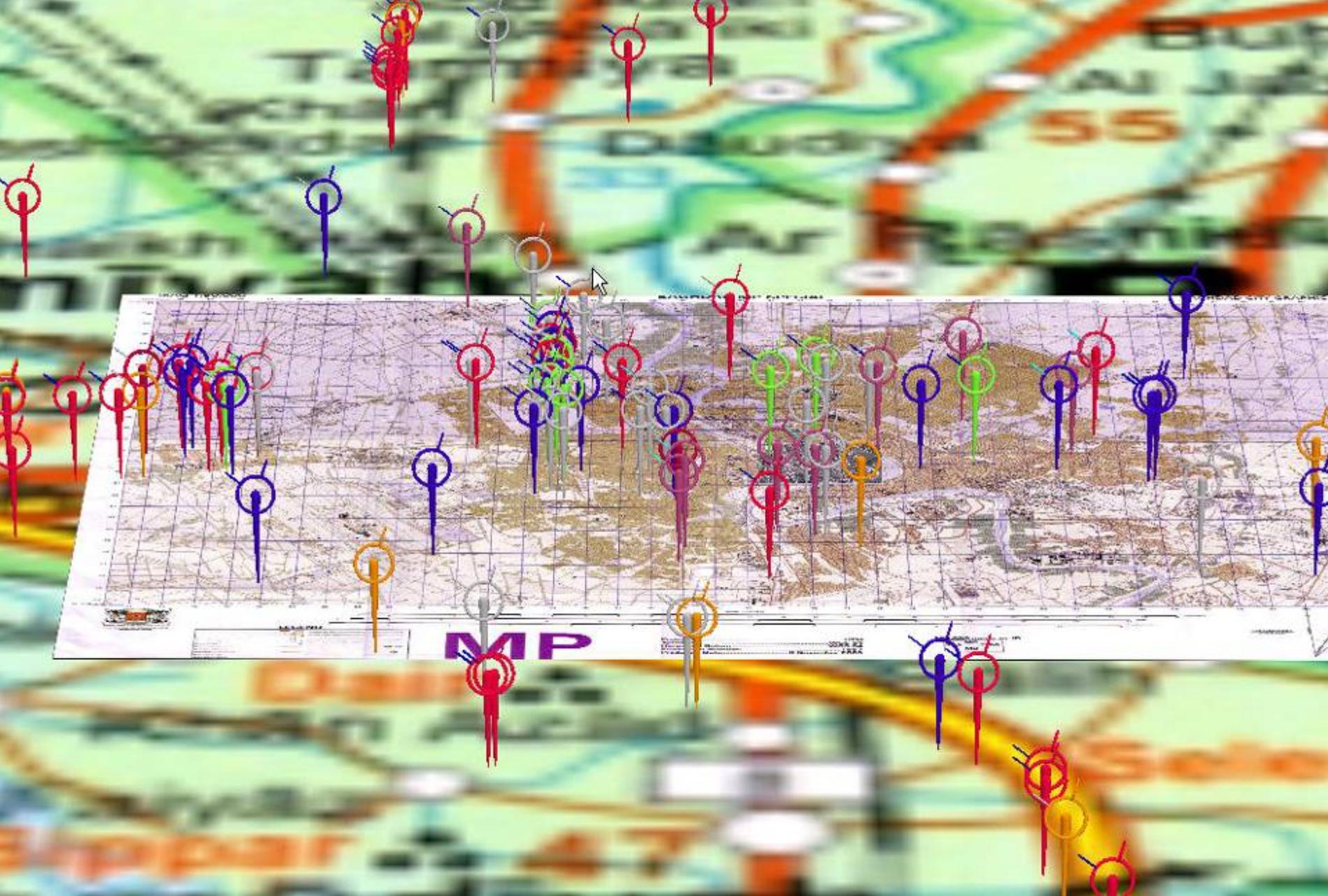
|           |  |
|-----------|--|
| 030913Jul | Zone 88. IDF attack on MNFI patrol.                      |
| 022116Jul | Zone 4. IDF attack on BIAP                               |
| 022205Jul | Zone 34. IED attack on MNFI patrol at GR MB 20000 85200. |

For the purpose of this experiment we focused on the following

Date, time, general area, type of attack, entity attacked, coordinates



**Example of user defined colors to different incidents**



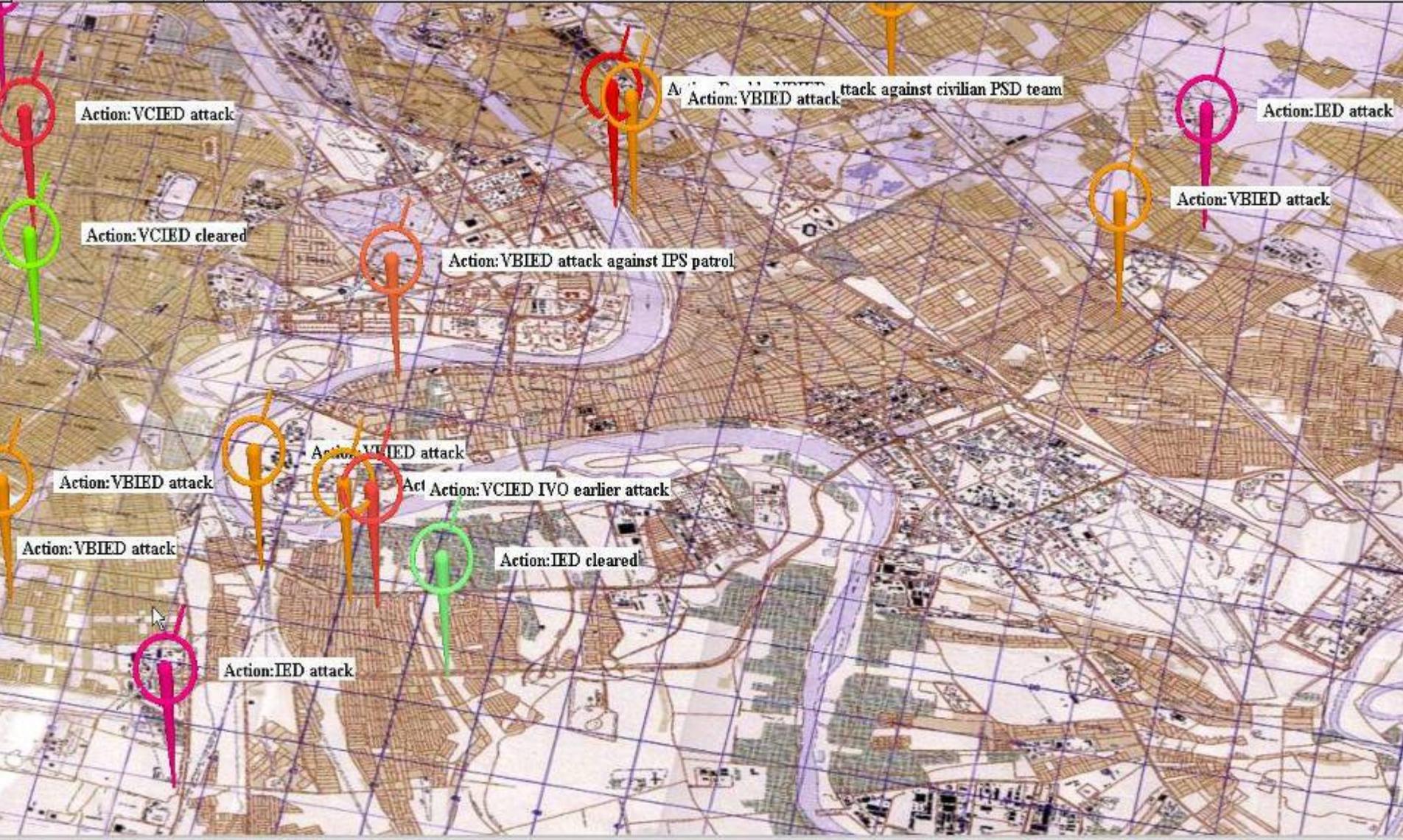
Different perspectives can be navigated to using the pan, tilt and zoom



# Shareable Situational Awareness

SimGraphics: Geo-Tracker: Version 0.15 - Tue May 10 14:53:29 2005

Graphics Inputs Outputs



A man in a dark uniform stands in a field of rubble under a cloudy sky. The scene depicts the aftermath of a disaster, with debris scattered across the ground and damaged buildings in the background.

# **STRONG ANGEL III**

INTEGRATED DISASTER RESPONSE DEMONSTRATION

**Eric Rasmussen, MD, MDM, FACP**  
Commander, Medical Corps, US Navy

**Old news here...**

**Critical  
infrastructure  
vanishes...**



WARNING  
Looters  
to be  
SHOT!

LITTLE SISTERS  
OF THE POOR  
MARY JOSEPH RESIDENCE

...Social behaviors change



Six-fold  
communication  
redundancy  
proves  
inadequate

Navy Theater Surgeon (Forward)  
Belle Chasse, New Orleans  
Joint Task Force Katrina

Eric VM - 360-621-3992 000 #3146#



FDPMU-757-362-4994 <sup>CDR</sup> MNA (out) - LCPA 757-362-4601  
Jeffries 202-316-0921

Ment

ADM Turcott

Favre Ed.

Lt Soireau

ERIC Home 360-692-7922 | 800 FedEx

Robert

ERIC

GAY 908-996-8327

Demi 1-360-621-3298

Cathy 617-947-9810

CAPT #1512 JFINC  
BAMLEY TVALCX  
COS

Corinne 1-619-889-2432

Shadowbox 703-684-2545

CAPT #1513 JFINC  
TVALCX

Marty Snyder - cell 757-651-0631

JFINC Medical 1-850-452-3100 x1311

Ltd Fleet Surg. 757-692-1946

MS EOC

AL EOC 251-461-1393 Seas - 703-262-5399

Carl TAYLOR 954-461-4338

BRIAN STECKER 831-402-1584

Pete G. 703-819-7822

Date W. 858-699-8808 Biron File 703-390-0993

Bob Green 610-246-0965 Lin Wells 703-390-6321

Nigel 646-266-5243

Ted 202-297-9547

Brooks Tony 404-992-7170

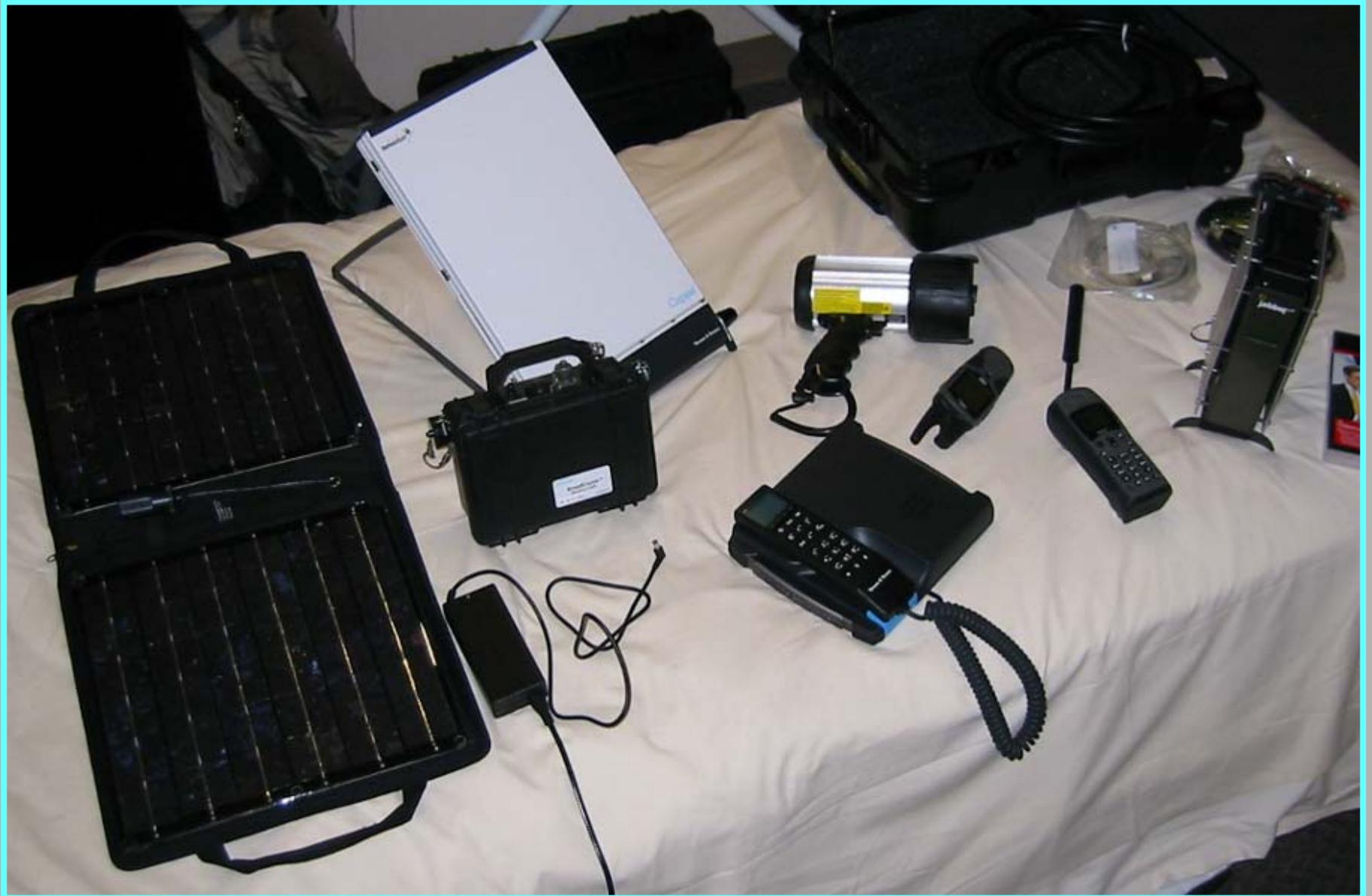
Robin Murphy 813-977-9201

Dan Engh 619-992-8757

PLC

301

Lessons are re-learned



Comms, lift, and power must be self-contained



GoogleEarth and  
aeromedical evacuation

New  
resources  
appear...



Pete Killcommons



# Department of Defense DIRECTIVE

NUMBER 3000.05  
November 28, 2005

USD(P)

SUBJECT: Military Support for Stability, Security, Transition, and Reconstruction (SSTR)  
Operations

It is DoD policy that:

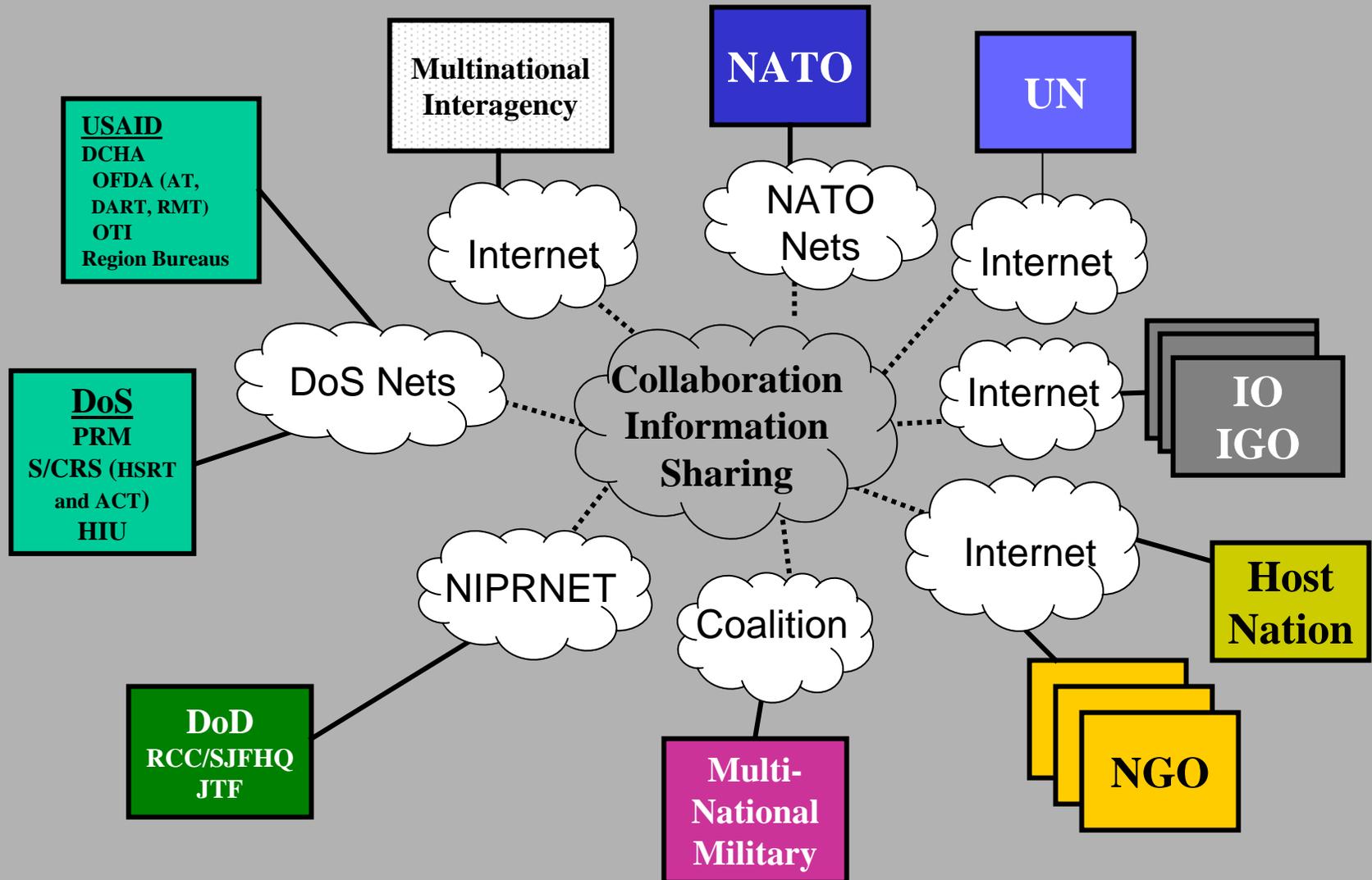
4.1. Stability operations are a core U.S. military mission that the Department of Defense shall be prepared to conduct and support. They shall be given priority comparable to combat operations and be explicitly addressed and integrated across all DoD activities including doctrine, organizations, training, education, exercises, materiel, leadership, personnel, facilities, and planning.

And new core requirements are developed

4.4. Integrated civilian and military efforts are key to successful stability operations.

Whether conducting or supporting stability operations, the Department of Defense shall be prepared to work closely with relevant U.S. Departments and Agencies, foreign governments and security forces, global and regional international organizations (hereafter referred to as “International Organizations”), U.S. and foreign nongovernmental organizations (hereafter referred to as “NGOs”), and private sector individuals and for-profit companies (hereafter referred to as “Private Sector”).

# Unclassified Information Sharing (DoDD 3000.05 Task 5.7.1)



# STRONG ANGEL III

INTEGRATED DISASTER RESPONSE DEMONSTRATION

SAN DIEGO STATE UNIVERSITY 20-26 AUG 2006

SAN DIEGO 20-26 AUG 2006



ANTICIPATING COMPLEXITY | EXPLORING RESPONSES | CULTIVATING RESILIENCE

## Integrated Disaster Response Demonstration 20-26 August 2006 San Diego



SAN DIEGO STATE  
UNIVERSITY

# Strong Angel III areas of exploration

- mesh networking
  - shared alerting tools
  - community informatics
  - day-zero cyber security
  - urgent satellite services
  - mobile worker presence
  - crisis leadership metrics
  - self-contained infrastructure
  - social network development
  - geospatial hazard integration
  - rapid assessment techniques
  - austere network management
  - societal indicator assessments
  - cross-organizational collaboration
  - machine-based multi-lingual translation
- Anticipating complexity
  - Exploring responses
  - Cultivating resilience



SDSU

8.3 miles

NTC

# **STRONG ANGEL III**

INTEGRATED DISASTER RESPONSE DEMONSTRATION

SDSU Center, NTC Satellite, and WiFi clouds



International participation toward a common goal

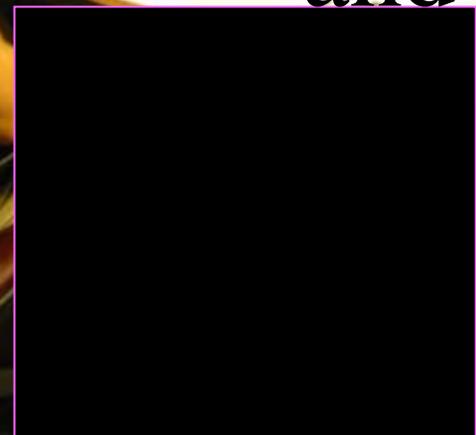
NSF LAMBDA RAIL

# Medical Reconstruction Task Force

Ochsner Medical Center, New Orleans, 12 September 2005



Mapping  
and





messaging

one – to -  
one

one – to -  
many

many – to -  
one



Vsee and  
CPU overlay

New  
informati  
on tools



CRASAR launch of imaging  
UAV



**The HUB:  
Technology for  
Collaborative Information Environments**

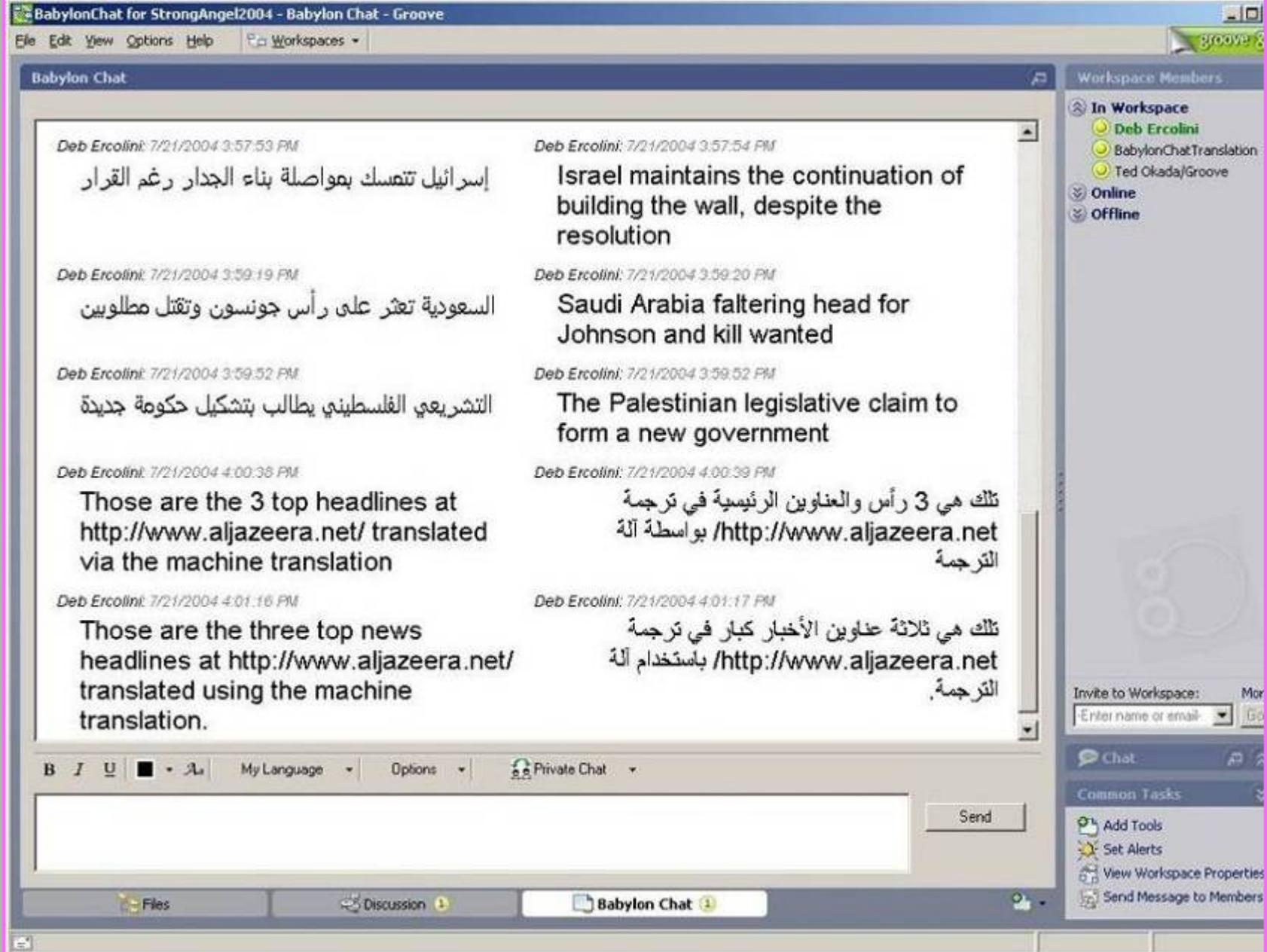
*Office of the Assistant Secretary of Defense  
Networks and Information Integration*

**Dr. Linton Wells  
Principal Deputy Assistant Secretary of  
Defense**

**21 March 2006**



**Resilient power**



Machine-based language translation



“Disconnectedness defines danger.”

*Dr. Tom Barnett, The Pentagon's New Map, 2004*

“If you can't communicate, you can't coordinate.”

*General Anthony Zinni, Somalia, 1994*

“Comms first.”

*Dr. Sheryl Brown, CIO, United States Institute of Peace*

**STRONG ANGEL III**

INTEGRATED DISASTER RESPONSE DEMONSTRATION

[www.strongangel3.org](http://www.strongangel3.org)

is that  
an implant?

The future went  
that way . . . sir

MindTel LLC  
Intelligence on Demand

