e-Response
Future Global Emergency Response

Austin Tate

AIAI, Informatics, University of Edinburgh

Coordination of Humanitarian Response

- **Developing common strategies**
- **Assessing situations and needs**
- **Convening coordination forums**
- **Mobilizing resources**
- **Addressing common problems**
- **Administering coordination**

Surgical kits to South Asia region

New Emergency Health kits and Diarrhoeal kits to South Asia region

India
Needs   25
Pipeline 25
Arrived -

Sri Lanka
Needs   65 + 40 Diarrhoea
Pipeline 18 + 39 Diarrhoea
Arrived 47 + 1 Diarrhoea

Maldives
Needs   10
Pipeline -
Arrived 10

Indonesia
Needs   50
Pipeline -
Arrived 50

Indonesia
Needs   40
Pipeline -
Arrived 40

Total needs   150 NEHK + 40 Diarrhoea kits
pipeline   43 NEHK + 39 Diarrhoea kit
arrived   107 NEHK + 1 Diarrhoea kit

Military Assistance
E.g. Unified Assistance CSF-536

CSF-536
Tsunami Disaster Relief

Multi-Agency Operations
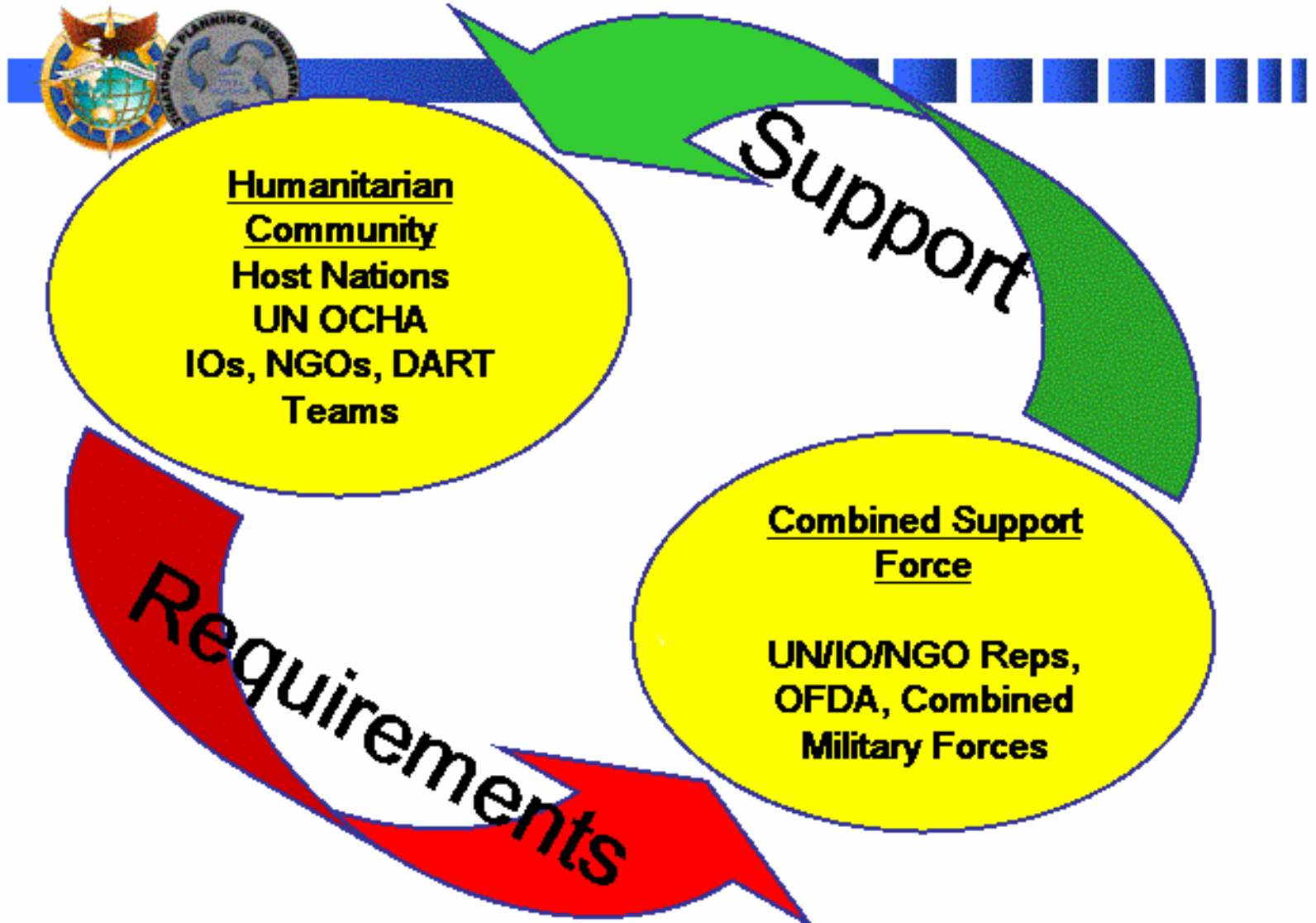
What technologies and organisational frameworks were already useful?

Multinational Planning Augmentation Team (MPAT)

Australia	Bangladesh	Brunei
Canada	East Timor	France
Fiji	Germany	India
Indonesia	Japan	Korea
Madagascar	Malaysia	Maldives
Mauritius	Mongolia	Nepal
New Zealand	Papua New Guinea	
Philippines	Singapore	Solomon Is.
Sri Lanka	Thailand	Tonga
Tuvalu	UK	US
Vanuatu	Vietnam	

A *cadre of military planners* from nations with Asia-Pacific interests capable of rapidly augmenting a multinational force (MNF) headquarters (HQ) established *to plan and execute coalition operations* in response to military operations other than war (MOOTW)

- MPAT in Operation UNIFIED ASSISTANCE

File   Edit   View   Favorites   Tools   Help

Back   Search   Favorites   Media

Address http://ares.apan-info.net/QuickPlace/tsunami/Main.nsf/h_Toc/e69e058632ec4f5b0a256f7c00271350/?OpenDocument

South Asia Tsunami Relief

Sign In

- Welcome
- PACOM Information:
- CSF-536 Information:
- CSGs:
- RFA:
- Request for Information:
- Relief Web
- Maps and Imagery:
- Reports & Summaries:
- Calendar
- Index
- Search

Download

Tsunami Relief Information Exchange

Updated Information <- New in last 24 hours

For the latest information posted to this site in

Room Map - tsunami - Mi...

Rooms in this place
Click any room name to go there

South Asia Tsunami Relief
➡ RFA
  CSF-536 Information
    Chaplain
  PACOM Information
  CSGs
    Thailand AO
    Indonesia AO
    Sri Lanka AO

File   Edit   View   Favorites   Tools   Help

Back   Search   Fav

Address http://ares.apan-info.net/QuickPlace/tsunami/PageLibrary

RFA Status Report (9 Jan 05) Update
administrator, 01/09/2005 - 02:20 PM

TRK #	DATE REC'D	REQ'R	TYPE	
MN003	4-Jan-05	WFP	TRANS-PRIORITY	9-..
MN004	4-Jan-05	WFP	TRANS-URGENT	11
MN007	5-Jan-05	OFDA	TRANS-ROUTINE	9-..
MN009	9-Jan-05	UNJLC	TRANS-ROUTINE	

CSF-536 Tsunami Disaster Relief

Request for Assistance Process

Other OFDA Validated RFA

CSF-LNO / CSF JOC

Unfulfilled Requirement

Combined Support Group
OFDA / DART Validates Request
If cannot be sourced at the local level submits to the
CSF-LNO / CSF JOC

CSF CIVIL-MIL Coordination Board
Facilitated By OFDA / CSF Staff
- CMO Staff
- OFDA/ UN /international relief agencies
- Selected C-staff
- CSG – LNOs

Validates / Coordinates Sourcing
- HN – National
- UN / NGO / PVO / IO
- USAID Contractors

If need cannot be sourced at the national level then it is submitted to the CSF Joint Mvt Coord Board / C-3.

Need filled → Task Complete   N / Y

RFF   N

Military Capable   Y → Task Complete   N

Local Needs identified by several possible entities and RFA submitted to Combined SPT GRP
- HN
- MNF
- Army CA Tm
- NGO
- PVO / IO

CSF Joint Movement Coordination Board
- C-4 rep / Joint Movement Center rep

Transp Request   N → C-3 → CSF Staff Action   Y

article | discussion | edit this page | history

2004 Indian Ocean earthquake

From Wikipedia, the free encyclopedia.

This article or section is abo
Information may change rapidly a

For related articles, including charities accepting donations, se

The **2004 Indian Ocean earthquake** was an undersea earthqua
December 26, 2004. The earthquake generated tsunamis that w
magnitude of 9.0, it was the largest earthquake since the 9.2 ma
tied for fourth largest since 1900.

The earthquake originated in the Indian Ocean just north of Sime
Indonesia. The resulting tsunamis devastated the shores of Indd
waves of up to 15 m (50 feet) high, even reaching the east coast

At least 150,000 people are known to have died as a result of the
toll may never be known due to bodies swept out to sea, but it is
agencies warn of the possibility of more deaths to come as a res
of starvation seems now to have been averted [1]. The plight of
widespread humanitarian response.

Contents [hide]

Create an account or log in

article | discussion | edit | history

Blogs

Read the latest news at http://tsunamihelp.blogspot.com

See also Ground Zero Information page to add information for *on-the-ground* blogs and other conditions and status postings.

Dedicated blogs and resources

[edit]

Regional

[edit]

- TsunamiAsie.com - The most complete blog in french about the tsunami: news, resources, help, ONG, victims
- ProPoor Tsunami Blog - Blog pooling together resources, volunteers, ideas, and needs for Tsunami relief.
- YAhoo GRoup for TSUNAMI affected victims - The Aftermath of TSUNAMI- exchange feelings, provide relief, help, get info. about missing persons, relief giving organisation, all about the Tsunami and to cope out from it...
- Tsunami Help - The South-East Asia Earthquake and Tsunami blog: News and information about resources, aid, donations and volunteer efforts.
- Tsunami-Info.org - News feed and tsunami blog aggregator managed by Andy Carvin.
- Malaysia & Thailand Tsunami Disaster HELP - Aid, donation information and updates for tsunami victims in Malaysia and Thailand
- World Health Organization Situation Reports
- Center for International Disaster Information - a USAID-funded clearinghouse for disaster information
- A website forum for details and photos of missing friends and relatives
- Swedish Wiki Disaster Information - "Information om katastrofen i Sydostasien" *(collected information from Sweden in Swedish)*
- Tsunami Victims Website
- Googlenews search result
- Tsunami Help Relief - Tsunami Help Relief: Ideas for how to help those affected by the earthquake and tsunami.

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bbc.co.uk   Home   TV   Radio   Talk   Where I Live   A-Z Index

Low Graphics version | Change edition
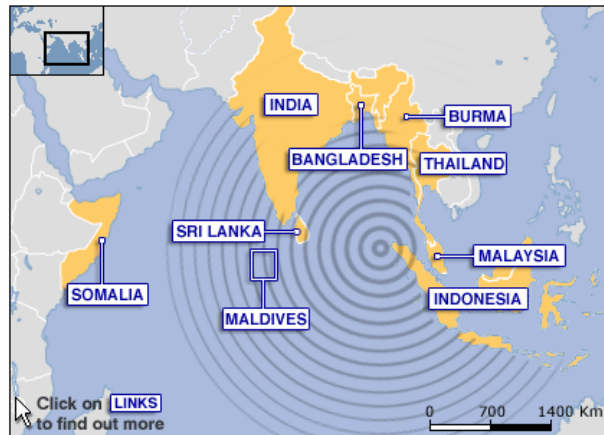
BBC NEWS UK EDITION

Last Updated: Thursday, 6 January, 2005, 10:09 GMT

✉ E-mail this to a friend   🖨 Printable version

Tsunami: Readers' eyewitness accounts

The BBC News Website has received thousands of emails from readers telling of their stories of the tsunami. Click on the map below to read their eyewitness accounts from across the region.

▸ Click here to tell us about your experiences

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CBBC NEWS
BBC ON THIS DAY

INDIA   BURMA   BANGLADESH   THAILAND   SRI LANKA   SOMALIA   MALDIVES   MALAYSIA   INDONESIA

0   700   1400 Km

Click on LINKS to find out more

SRI LANKA

❝ My partner and I were staying in Beruwela on the south-west coast of Sri Lanka when the tsunami hit. We watched from the first floor of our hotel as a wall of water swept in and tore the ground floor apart underneath us.

Waiting to be evacuated to Colombo was very frightening as everyone was fearful of another and possibly bigger wave

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bbc.co.uk   Home   TV   Radio   Talk   Where I Live   A-Z Index   Searc

Low Graphics version | Change edition   Feedback | He

BBC NEWS UK EDITION   🖵 WATCH BBC NEWS IN VIDE

Last Updated: Wednesday, 29 December, 2004, 19:48 GMT

✉ E-mail this to a friend   🖨 Printable version

Web posting reunites quake family

Rob Delissen had no idea whether his brother Theo, his wife and their two-year-old daughter were still alive after the tsunami hit Thailand.

The Dutchman was one among thousands of people trying to trace family and friends after a disaster which claimed tens of thousands of lives.

Posters of missing and injured people cover Thai hospital walls

Shattered communications only added to the difficulty of getting news.

But a posting by a stranger on the BBC News website led Mr Delissen to his relatives, who had all survived.

Mr Delissen, from Nieuwegein, knew the three were holidaying in Thailand on their way to start a new life in New Zealand, but he did not know where.

He turned detective, working out what resort they were staying at by examining pictures saved in his computer's memory cache, but was unable to get through by phone.

Then he spotted a message on the BBC News website from a Swedish man who had contacted his daughter on the same island, Koh Racha Yai, about 30 miles south of Phuket.

Having tracked down the man's phone number in Stockholm, Mr Delissen called him.

❝ Thank you Voi-Ping. Your message on this site got me in contact with your daughter on Koh Racha Yai. My brother Theo and his wife and daughter seem to be ok, with everybody else on the island. Thank you BBC, thank you internet ❞

Rob Delissen, the Netherlands

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BBC WEATHER
CBBC NEWS
BBC ON THIS DAY

ASIA QUAKE DISASTE   ▸ In Dept

LATEST NEWS
▸ UN warns on aid pledges
▸ Indonesia restricts Aceh aid wo
▸ Aceh man's two-week sea orde
▸ A child tells his story of surviva

EYEWITNESS
Aceh attempts to protect orphans fron traffickers
▸ Thai village struggles to rebuild
▸ Diary: Awesome task in Sumat
▸ In pictures: A family's plight
▶ VIDEO Waves sweep Aceh

BACKGROUND AND ANALYSIS
The human impact c the tsunami disaster sound and pictures
▸ History's other great relief effor
▸ Maps: Trail of destruction
▸ Animated guide: Tsunami disas
▸ Timeline of the disaster
▸ At-a-glance: Countries hit
▸ Asian disaster: How to help

VIDEO AND AUDIO
▶ VIDEO Television reports

HAVE YOUR SAY
▸ How will countries recover?
▸ Your accounts of the tsunami
▸ Missing persons: Can you help?

Needs

- *Sensor data flows*
- *Accurate information*
- *Correlation and validation*
- *Relevant and understandable communication*
- *Contact making*
- *Requests for assistance and matching to available capabilities*
- *Standard Operating Procedures and Alarms*
- *Planning and coordination*
- *Scale and robustness*

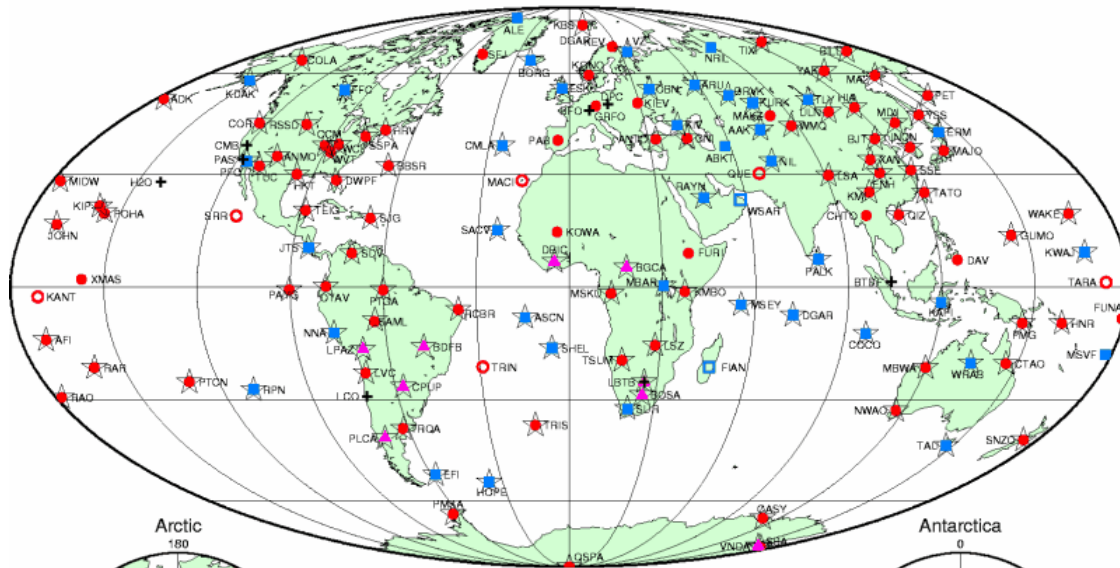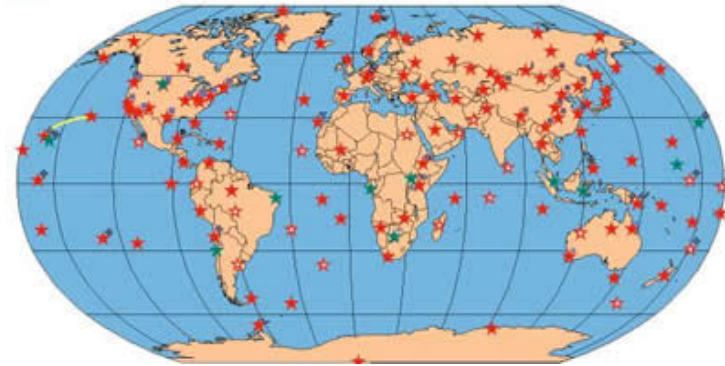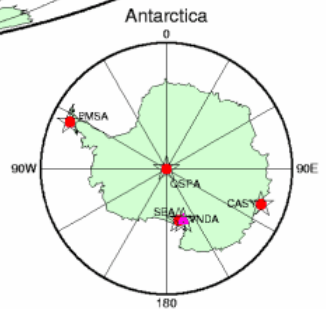Artificial Intelligence Applications Institute
School of Informatics, University of Edinburgh

What's next (medium-term)?

Global Seismographic Network

The goal of the GSN is to deploy over 128 permanent seismic recording stations uniformly over the earth's surface
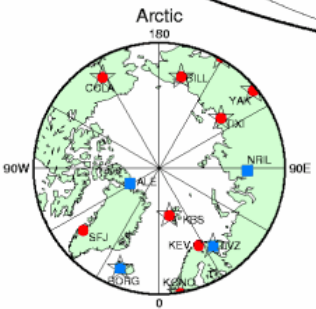
Installed	Planned	
85 ●	6 ○	IRIS/USGS Stations
39 ■	2 □	IRIS/IDA Stations (UCSD)
8 +		Other/Affiliated GSN Stations
9 ▲		GTSN Stations (AFTAC)
117 ☆		Telemetered stations

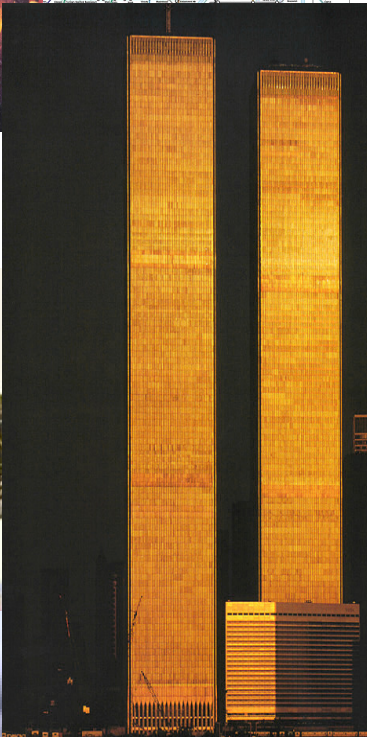Albuquerque Seismological Laboratory
January 10, 2005 (crh)

Bessie Charmichael School   Chevron Building   Embarcadero Plaza   Embarcadero 4 Bldg.   Transamerica Bldg.   Levi Plaza

Marina (WS school)

12 April 2004

2 January 2005

DIGITAL GLOBE

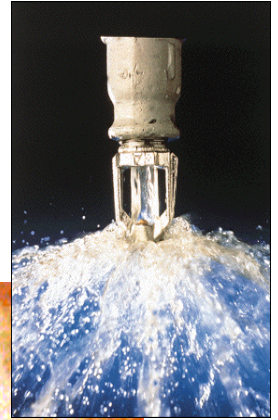**Kings Cross**

Mont Blanc

WTC
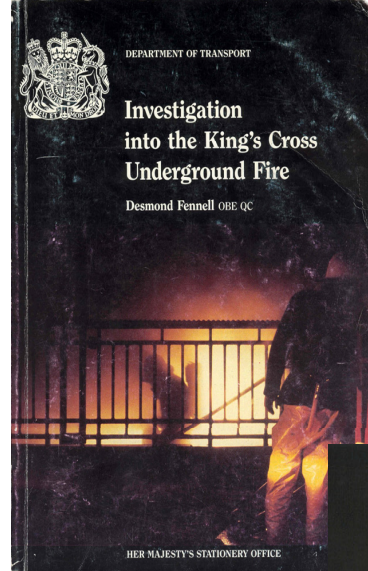
Piper Alpha

Kobe

FireGrid Technologies

Tens of Thousands of Sensors & Monitors

Emergency Responders

Knowledge Systems, Planning & Control

Super-real-time Simulation

Computational Grid

Maps, Models, Scenarios

Advanced Knowledge Technologies, Collaboration Aids, Semantic Web

http://www.aktors.org/coakting
http://www.semwebcentral.org

Examples of AIAI's Collaborative Emergency Response Research

- *1991-9: Coalition NEO* – Non-combatant Evacuation Operations
- *1994-6: SAR* – RAF Search and Rescue Coordination Centre (Pitreavie)
- *2000-2: CoAX* – Coalition Agents eXperiment (4 countries, 30 organisations)
- *2002-3: CoSAR-TS* – Coalition Search and Rescue Task Support
- *2002-4: CoAKTinG* – Collaborative Advanced Knowledge Technologies for e-Response
- *2004-5: Co-OPR* – Collaborative Operations for Personnel Recovery for US JFCOM

http://www.aiai.ed.ac.uk/project/plan/
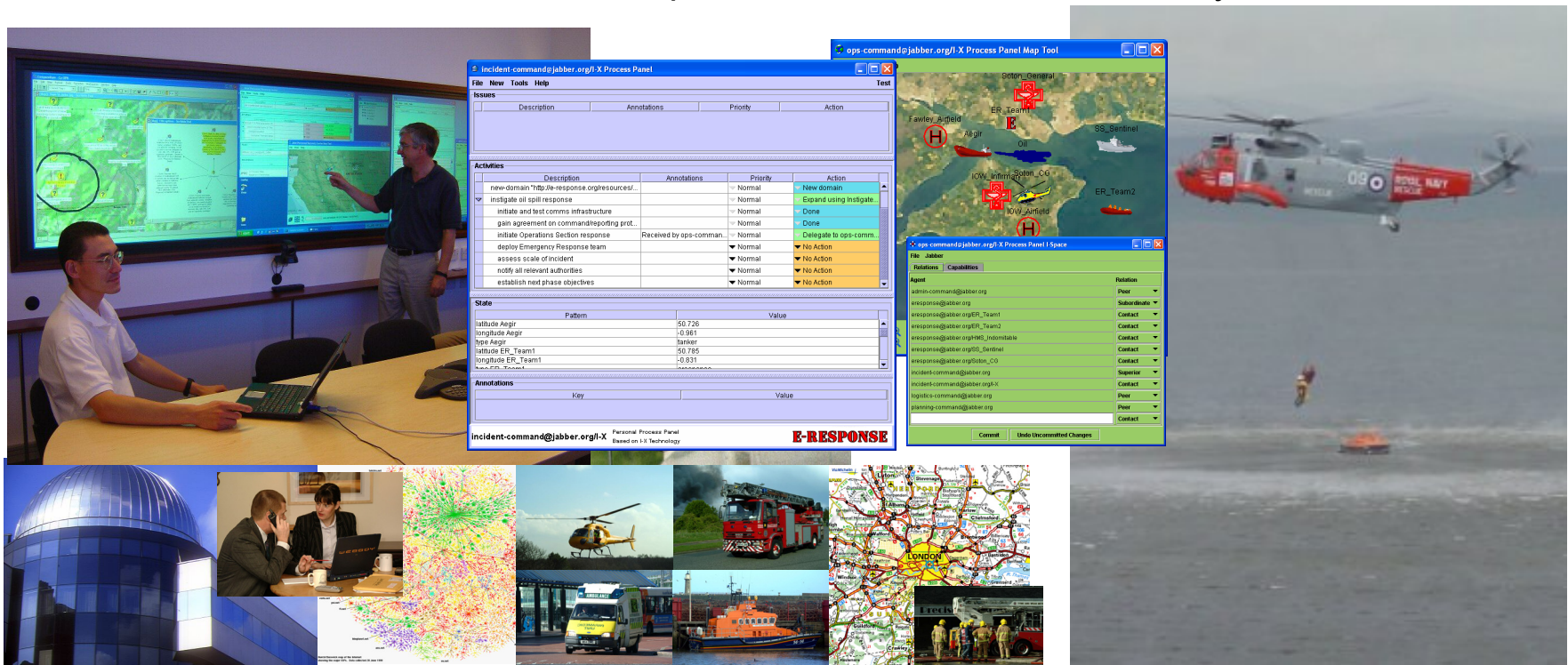
CAPWIN
Capital Wireless Integrated Network

Building a Bridge in Transportation and Public Safety Communications

http://www.capwin.org

OnStar.com

How GM Goodwrench Remote Vehicle Diagnostics Works
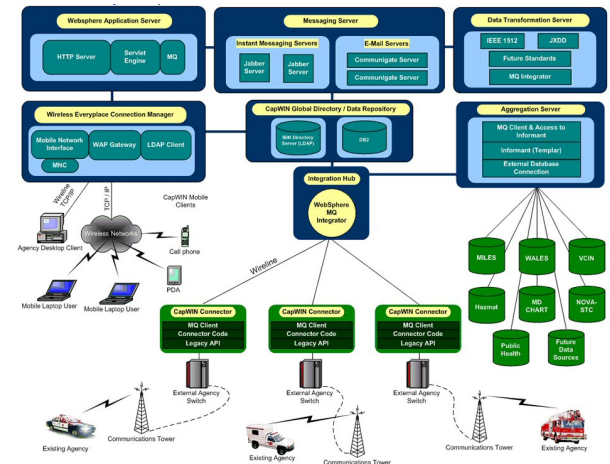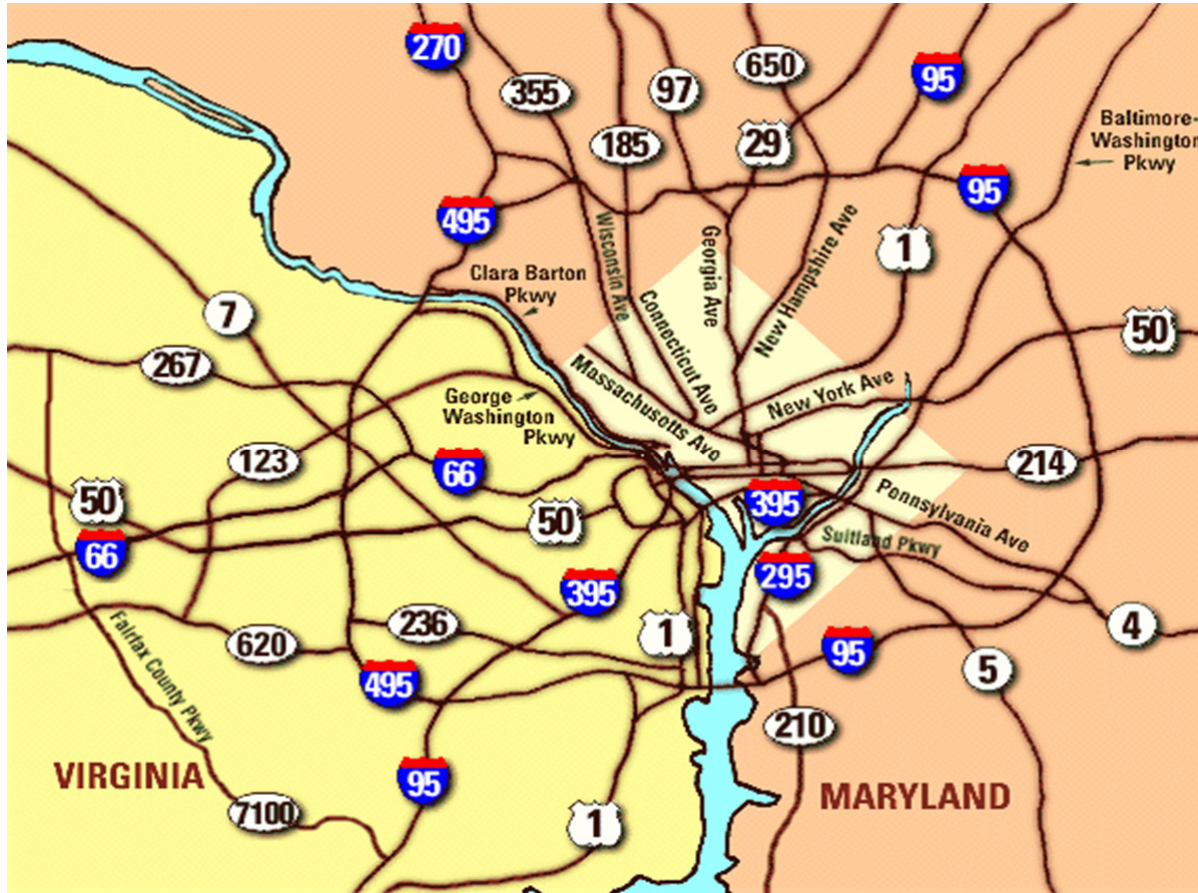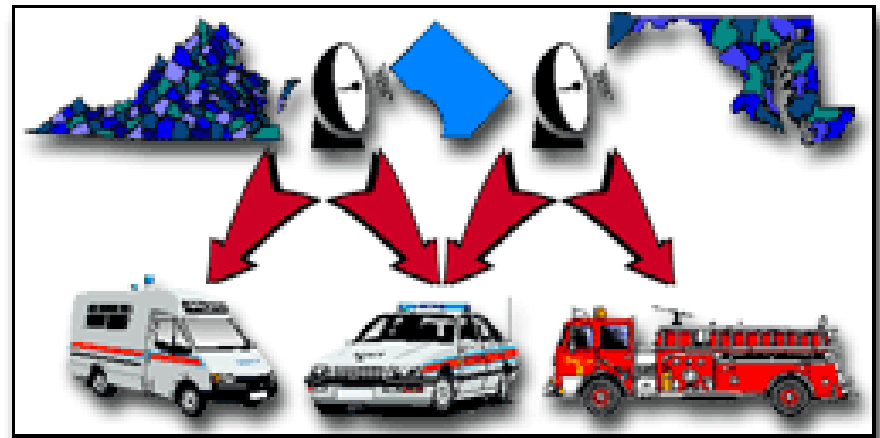
1. A warning light flashes (for example, "Service Engine Soon").
2. Driver pushes OnStar button to call the OnStar Center and request a vehicle diagnostic. OnStar receives location data from the vehicle and customer information on the advisor's computer screen.
3. An OnStar advisor sends a signal to the vehicle asking for status of one or more of the vehicle's computers — powertrain, antilock brakes, airbags and OnStar.
4. Vehicle sends back any problem codes and the advisor analyzes codes for severity of problem.

National Cellular Network

OnStar Call Center

In Vehicle Hardware

GPS Antenna: Receives time signals from Global Positioning System Satellites
OnStar Modules:
- 3-watt cellular communication device between OnStar and the vehicle
- Brains of the system — calculates vehicle location, dials the phone, interfaces with vehicle's electronics

3 Button Assembly: Customer pushes one button to connect with OnStar advisor or makes phone calls
Cell Antenna: Externally mounted on vehicle for better reception
Microphone: Allows driver to speak to OnStar advisor hands-free

5. The OnStar Advisor offers one of these actions:
- No action necessary
- Service can wait until next regular maintenance check
- Should get service at GM dealer within 7 days — the advisor can make appointment
- Get service at GM dealer as soon as possible — the advisor can make appointment
- Turn off the vehicle immediately and wait for dispatched roadside assistance
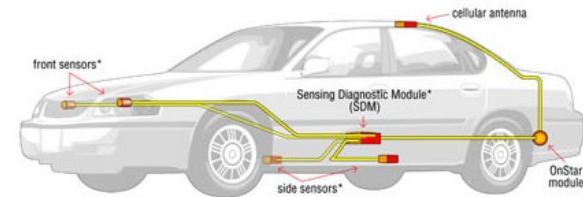
OnStar advisor

Figure 1: The GM advanced automatic crash notification (AACN) system uses front and side sensors as well as the sensing capabilities of the Sensing and Diagnostic Module (SDM) itself. The accelerometer located within the SDM measures the crash severity.
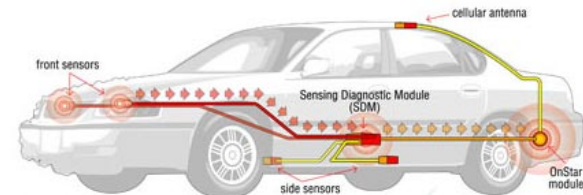
Figure 2: In the event of a moderate to severe frontal or side-impact crash, data is transmitted from the affected sensors to the SDM. The SDM sensor also can identify a rear impact of sufficient severity. Regardless of whether the air bags deploy, the SDM transmits crash information to the vehicle's OnStar module.
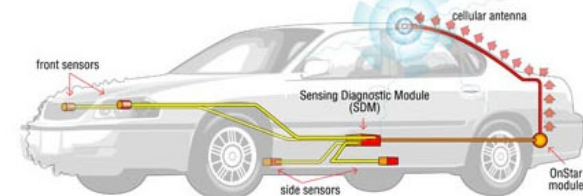
Figure 3: Within seconds of a moderate to severe crash, the OnStar module will send a message to the OnStar Call Center (OCC) through a cellular connection, informing the advisor that a crash has occurred. A voice connection between the advisor and the vehicle occupants is established. The advisor then can conference in 911 dispatch or a public safety answering point (PSAP), which determines if emergency services are necessary. If there is no response from the occupants, the advisor can provide the emergency dispatcher with the crash information from the SDM that reveals the severity of the crash. The dispatcher can identify what emergency services may be appropriate. Using the Global Positioning System (GPS) satellite, OnStar advisors are able to tell emergency workers the location of the vehicle.

*Number and location of sensors and SDM may vary depending on vehicle model.

- **Vehicle Monitoring and Assistance**
- **Commercial Service**
- **GPS, On-board Sensors and Comms.**
- **Remote Diagnostics**
- **Emergency and Accident Aid**

Diverse Uses for a "Safety Net"

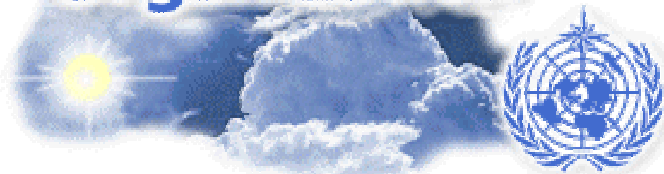- *Disaster response and evacuation*
- *Civil accidents*
- *Terrorism*
- *Disease control*
- *Business continuity*
- *Family emergencies and aid*
- *Transportation aids*
- *Help desks*
- *Procedural assistance*

What's the vision (longer-term)?

World Meteorological Organization

A United Nations Specialized Agency
Working together in Weather, Climate and Water

- **http://www.who.int**
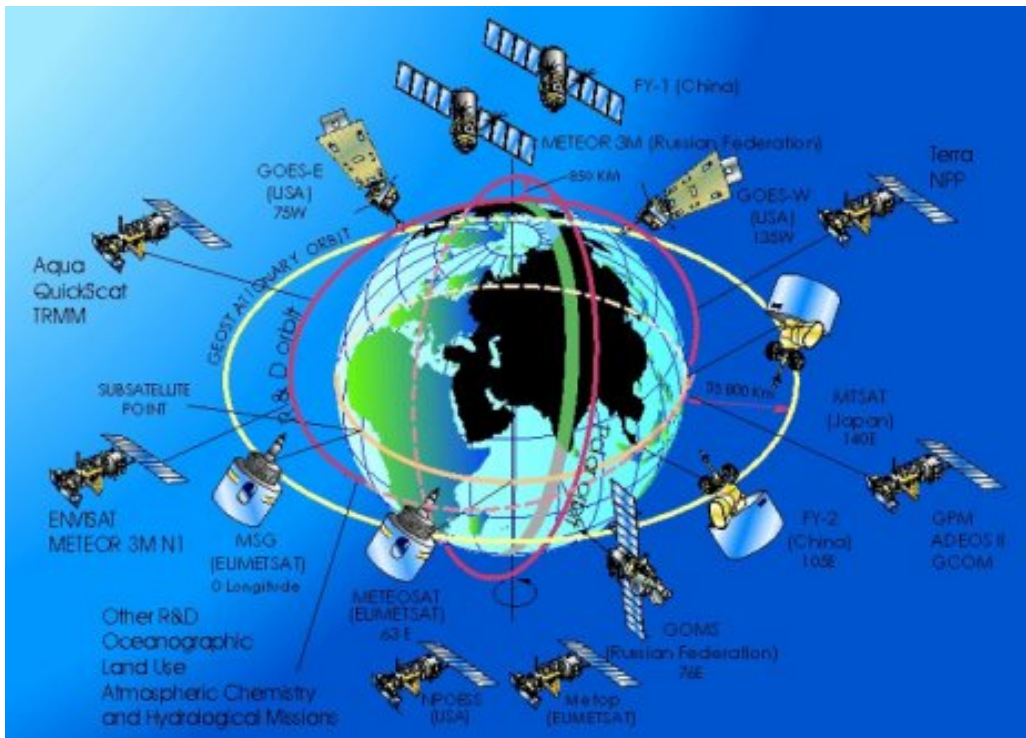
WMO has — through its sponsored and co-sponsored scientific and technical programmes and its network of three World Meteorological Centres (WMCs) and 40 Regional Specialized Meteorological Centres (RSMCs), and the National Meteorological and Hydrological Services of its 187 Members — the infrastructure to generate and deliver information-based products and services to enable nations to prevent, prepare for, respond to, and recover from the impacts of weather-, water- and climate-related hazards in the most timely and effective manner.

Coalition & Multinational Experiments

http://arpi.isx.com/
http://www.isx.com/projects/cpof.php
http://www.jfcom.mil/about/experiments/mne3.htm
http://www.aiai.ed.ac.uk/project/coax/

Disaster Simulator

Disaster Prevention / Search and Rescue Agents

Software World

Traffic Flow Model
Combustion Model
Fire Spread Model
Mass Behavior Model
Mass Psychology
Building Collapse Map

Structural Vibration Model
Tsunami Model
Seismic Motion Model
Fluid Dynamics Model
Liquefaction Model

Traffic Map
Doctor Agent
Commander Agent
Rescuer Agent
Robot Agent
Fire Fighter Agent
Police Agent
Victim Agent
Back Supporter Agent

International Interdisciplinary
Cooperative Research

Plugged In By Researchers Worldwide

Human World

Geographic
Information
System

Mission Critical
Man-Machine
Interface

AR Presentation of Information
Victims • Mass Media • Rescuers
Fire Fighters • Police • Volunteers
Doctors • Commanders
Disaster Control Center
Prime Minister • President
Mayor • Politicians

Disaster Information
Collection
Victims • Mass Media

Virtual Disaster
Experience
Workers • Students • Children
Shopping Malls • Museums

Behavior Command
Transmission

Real Disaster

Disaster Information Collection
Seismometers
Tsunami Meters
Video Cameras
Reconnaissance Parties
Mobile Telecommunicators

Real-World
Interface

Action Command Transmission
Traffic Signals • Evacuation Signals
Gas Valves • Water Gates
Electricity Controls • Rescue Robots
Army

• Enlightenment of Disaster Prevention
• Generic Disaster Prediction
• Urban Planning for Disaster Prevention
• Real-Time Monitoring of Damage
• Synchronous Simulation Using Real Data
• Efficient Generalization of Rescue Parties

• Virtual Experience and Training
• Conditioning of Optimal Action in Disaster
• Action Simulation of Parties of Rescue,
• Fire Fighters, and Back Supporters
• Simulation of Disaster Control Strategy
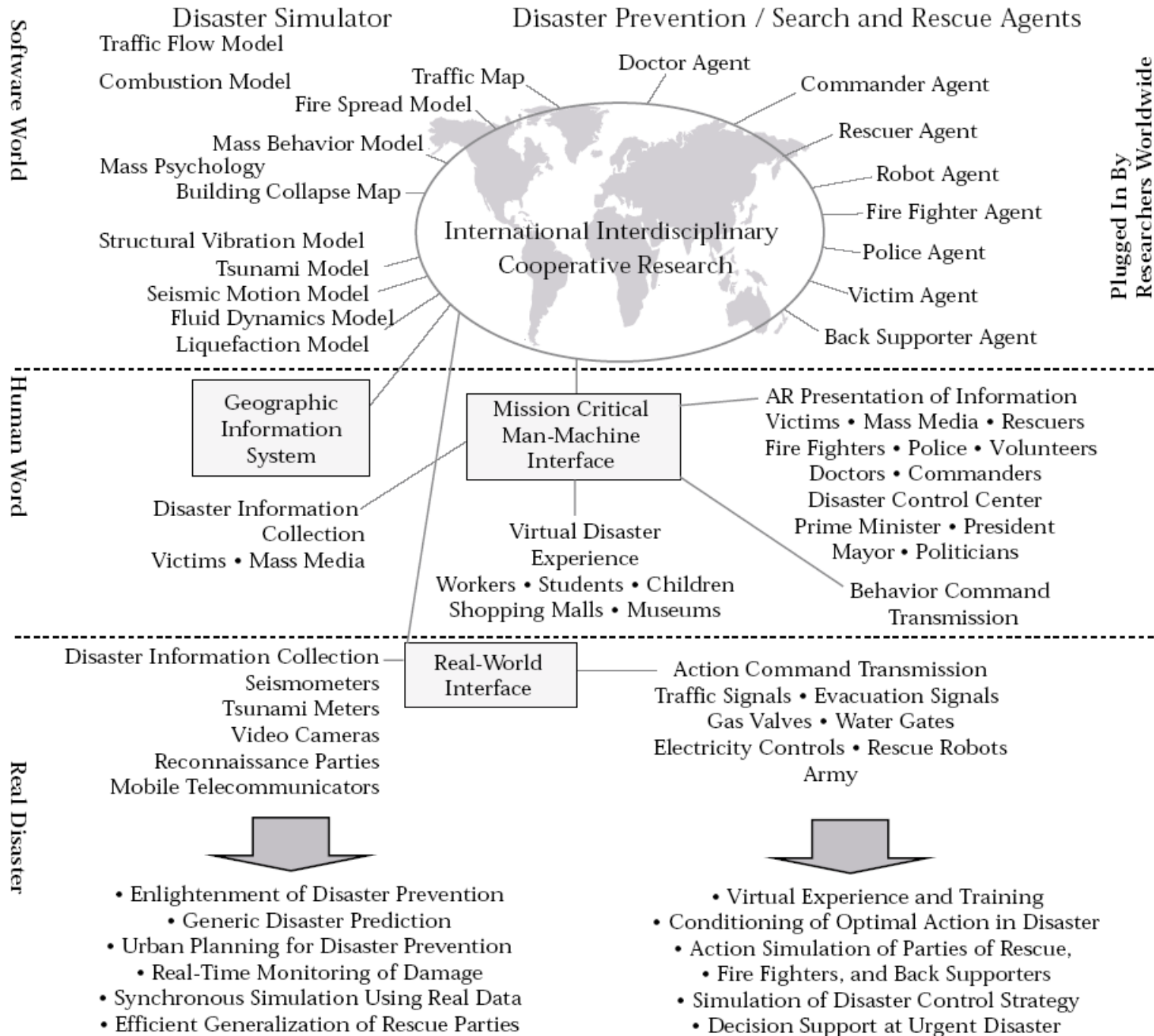• Decision Support at Urgent Disaster

Adapted from H. Kitano and S. Tadokoro, RoboCup Rescue A Grand Challenge
for Multiagent and Intelligent Systems, AI Magazine, Spring, 2001.

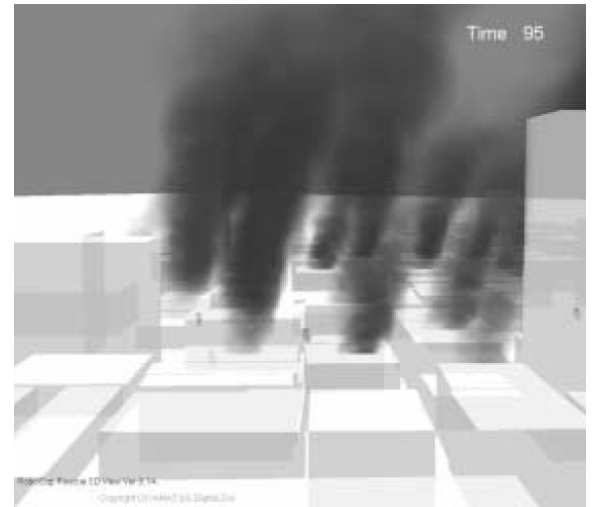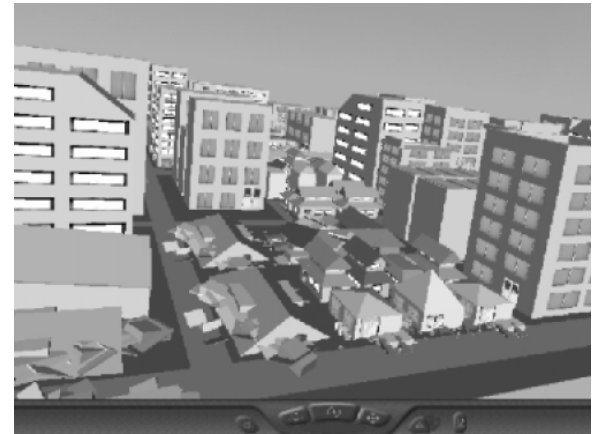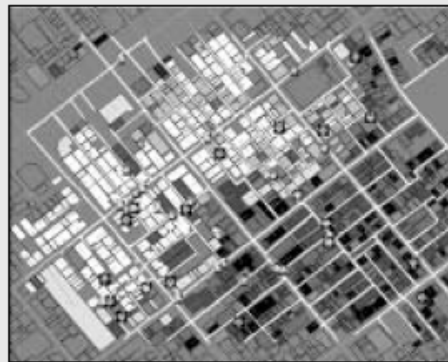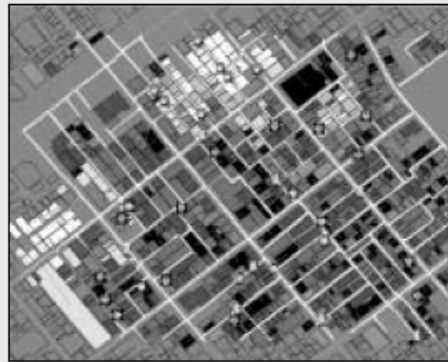Figure 9. Snapshot from a RoboCup-2000 Rescue Simulator
Demonstration—Successful Fire Fighting Rescue Operation.

Top: Onset. Middle: 160 min. Bottom: 300 min.
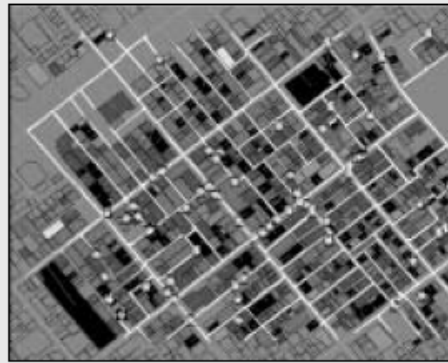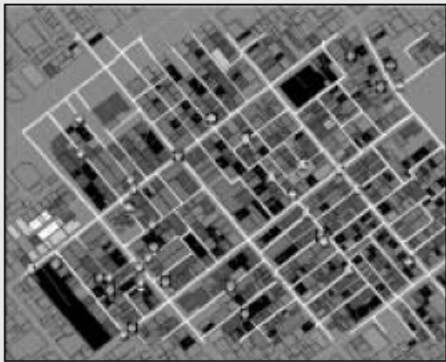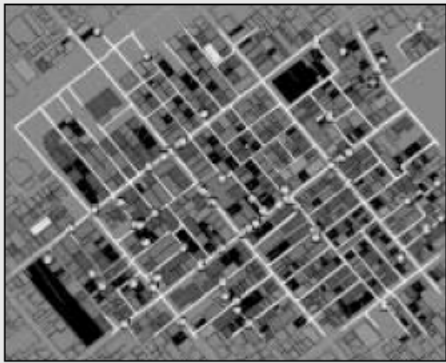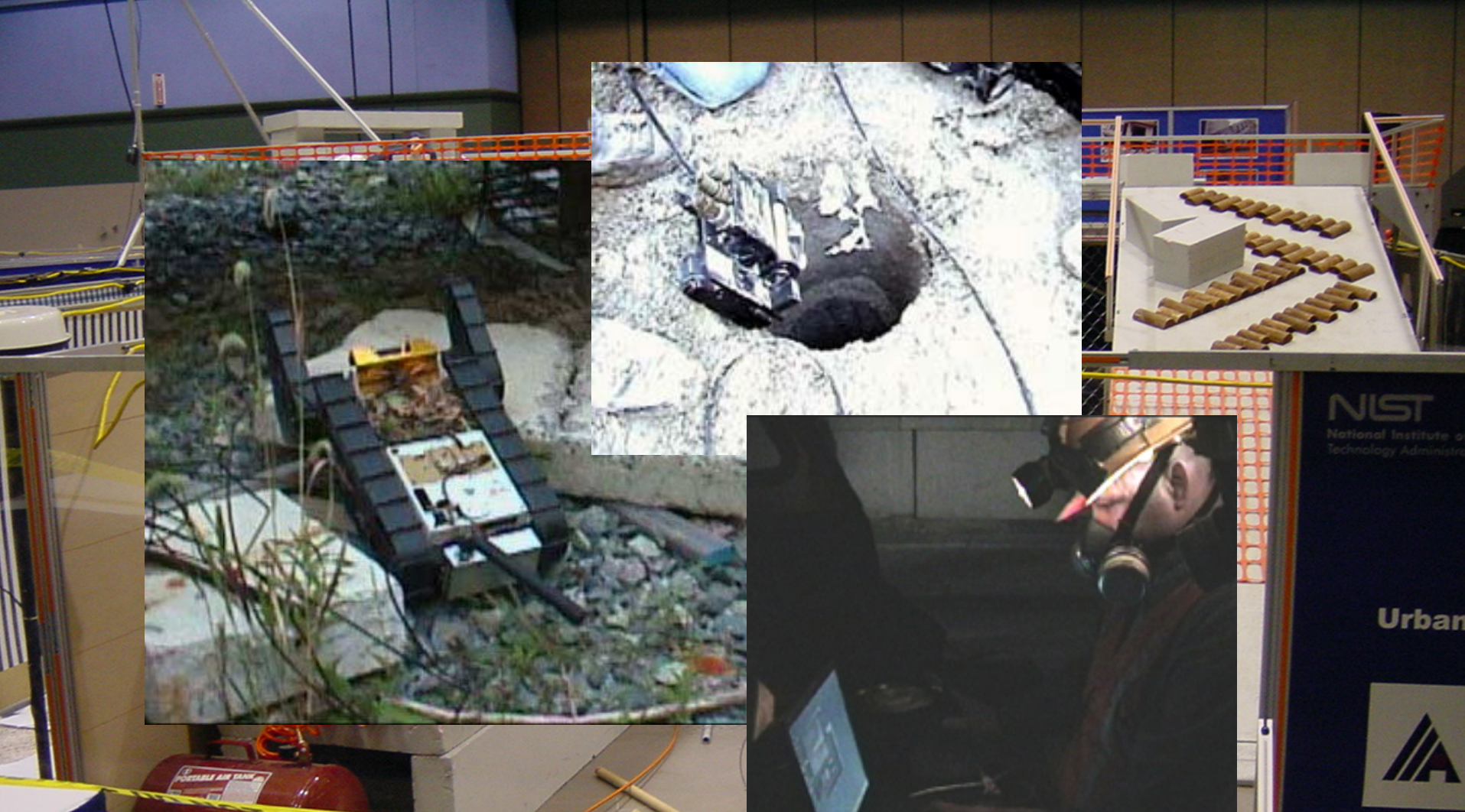(Courtesy of Milind Tambe, ISI/USC)

Figure 10. Snapshot from a RoboCup-2000 Rescue Simulator
Demonstration—Unsuccessful Fire Fighting Rescue Operation.

Top: Onset. Middle: 160 min. Bottom: 300 min.
(Courtesy of Milind Tambe, ISI/USC)

Standard Test Course
for
Urban Search and Rescue Robots

AAAI and RoboCup
Present
Robot Rescue

August 4 - 9, 2001, Seattle, Washington, USA

e-Response Vision

- *Multi-level emergency response and aid systems*
- *Personal, vehicle, home, organisation, district, regional, national, international*
- *Backbone for progressively more comprehensive aid and emergency response*
- *Also used for aid-orientated commercial services*
- *Robust, secure, resilient, distributed system of systems*
- *Advanced knowledge and collaboration technologies*
- *Low cost, pervasive sensors, computing and comms.*
- *Changes in building codes, regulations and practices*

Galileo

Satellite radionavigation is a kind of space compass which allows people to determine their location very accurately. In short, satellite positioning equipment will become as essential as watches are today. Five years from now, every mobile phone will be able to receive signals emitted by satellites and will make it possible to pinpoint the location of people, vehicles, ships, planes, goods and animals at any time, anywhere in the world.
This technology will considerably improve guidance systems, accident prevention, the efficiency of civil protection, such as emergency or distress calls, and environmental protection.

rescue

Guidance for firefighters, ambulance workers and the police services, who will benefit from being able to intervene more rapidly

More efficiency in rescue operations

Safer transport: fewer accidents, fewer road accident victims

Considerable improvement in air traffic safety

assist

Assistance to farmers in the management of their production

Easier and more reliable prospecting for new natural resources

study

Environmental research, surveillance of volcanoes, study of earthquakes

guide

Help for the blind to find their way

Locate

Reliable and accurate positioning services for hikers, sailors and motorists

manage

Contribution to environmental protection: it will make it possible to locate those who cause pollution, and to monitor the atmosphere and the movement of wild animals in order to preserve their habitats

Better public transport management

Provision of an extremely accurate time clock, for financial transactions

GALILEO will offer everybody everywhere satellite positioning services with guaranteed reliability. Individuals, companies and administrations will all be able to benefit, whether on the road, railways, in the sky or at sea: hikers will be able to find their way, tourists will be able to find the museum or restaurant they are looking for, and taxi drivers will arrive at the right destination. This new global public service has many professional applications.

More Information

- *http://i-rescue.org/gc/ (incl. slides of this talk)*

- *http://www.apan-info.net (MPAT)*
- *http://www.capwin.org/ (CAPWIN)*
- *http://www.rescuesystem.org/robocuprescue/*
- *http://www.isx.com/projects/cpof.php (CPOF)*
- *http://www.aktors.org*
- *http://www.aiai.ed.ac.uk/project/plan/*

Relevant Technologies

- **Sensors and Information Gathering**
  - *sensor facilities, large-scale sensor grids*
  - *human and photographic intelligence gathering*
  - *information and knowledge validation and error reduction*
  - *semantic web and meta-knowledge*
  - *simulation and prediction*
  - *data interpretation*
  - *identification of "need"*
- **Emergency Response Capabilities and Availability**
  - *robust multi-modal communications*
  - *matching needs, brokering and "trading" systems*
  - *agent technology for enactment, monitoring and control*
- **Hierarchical, distributed, large scale systems**
  - *local versus centralized decision making and control*
  - *mobile and survivable systems*
  - *human and automated mixed-initiative decision making*
  - *trust, security*
- **Common Operating Methods**
  - *shared information and knowledge bases*
  - *Shared standards and interlingua*
  - *shared human scale self help web sites and collaboration aids*
  - *shared standard operating procedures at levels from local to international*
  - *standards for signs, warnings, etc.*
- **Public Education**
  - *publicity materials*
  - *self help aids*
  - *public training*

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