



PROSPECTS AND CONSTRAINTS OF THE USE OF SPACE TECHNOLOGIES FOR DDR

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INTRODUCTION

HUMAN SUFFERING



NATURAL PROCESS



10+ People are killed
100+ people are affected
A state of emergency is declared
International assistance is called for
www.emdat.be



DEFINATION OF TERMS

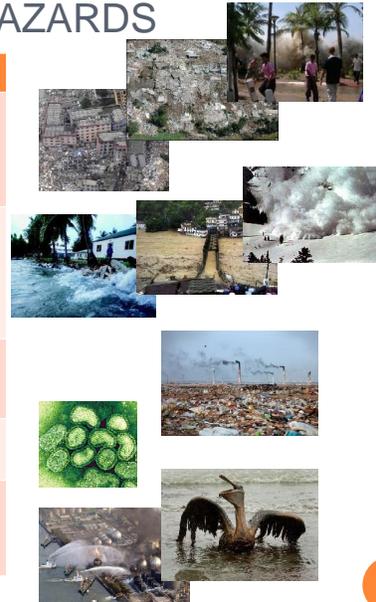
Term	Definition
Hazard	A potentially damaging physical event, phenomenon or human activity that may cause loss of life or injury, property damage, social and economic disruption or environmental degradation. This event has a probability of occurrence within a specified period of time and within a given area, and has a given intensity.
Disaster	A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.
Elements-at-risk	Population, properties, economic activities, including public services, or any other defined values exposed to hazards in a given area.
Exposure	Degree to which the elements-at-risk are exposed to a particular hazard.
Vulnerability	The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. Can be subdivided in physical, social, economical and environmental vulnerability.
Capacity	The positive managerial capabilities of individuals, households and communities to confront the threat of disasters.
Risk	The probability of harmful consequences, or expected losses resulting from interactions between hazards and vulnerable conditions.

Summary of definitions related to disasters, hazards and vulnerability. Based on UN-ISDR (2004)

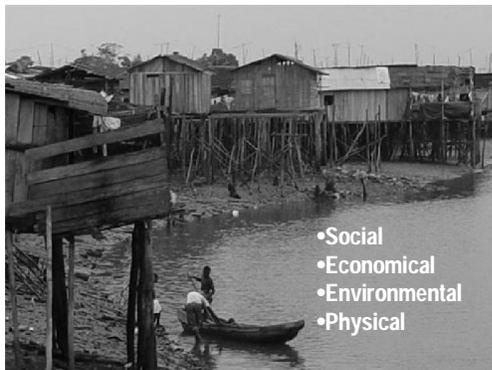


VARIOUS TYPES OF HAZARDS

Types	Hazards
Geological Hazards	Earthquake Landslide Tsunami Dam burst Volcanic eruption Mine Fire
Water & Climatic Hazards	Tropical Cyclone Cloudburst Floods Heat & Cold wave Drought Snow Avalanche Hailstorm
Environmental Hazards	Environmental pollutions Desertification Deforestation Pest Infection
Biological	Human / Animal Epidemics Food poisoning Pest attacks
Chemical, Industrial, Nuclear	Fire Oil spill Radioactive fallout



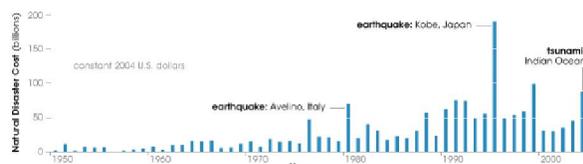
THE STATE OF BEING WEAK



- Social
- Economical
- Environmental
- Physical

(Wilches-Chaux, 1989) identifies eleven different sub types of vulnerability

helps to determine the impact of a hazard on a population



Since 1950, the cost of natural disasters worldwide has increased dramatically.

(Graph by Robert Simmon, based on data courtesy EM-DAT: The OFDA/CRED International Disaster Database (www.em-dat.net)
Université Catholique de Louvain—Brussels, Belgium)

VULNERABILITY

- ⌄ The expected degree of loss experienced by the elements at risk for a given magnitude of hazard (Landslide Hazard and Risk, editors Glade, T. et al, 2006).
- ⌄ The degree of loss to a given element or set of elements within the area affected by a hazard. It is expressed on a scale of 0 (no loss) to 1 (total loss) (Landslide Risk Management, editors Hungr et al, Balkema, 2005).
- ⌄ The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazard (DRMP, Distt. Sialkot, DDMA, November, 2008).



ROLE OF SPACE TECHNOLOGIES

- ⌄ Navigation : Positioning
- ⌄ Telecommunications
- ⌄ Earth Observation
- ⌄ Scientific



CONTRIBUTION OF RS AND GIS IN DISASTER MANAGEMENT

Disaster Mitigation

- Catalogues with spatial component
- Hazard assessment
- Elements at risk mapping
- Vulnerability assessment
- Risk assessment
- Spatial Decision Support Systems

Disaster preparedness

- Disaster plans
- Anomalies in a time series
- Forecasting & Early warning
- Monitoring of an ongoing situation

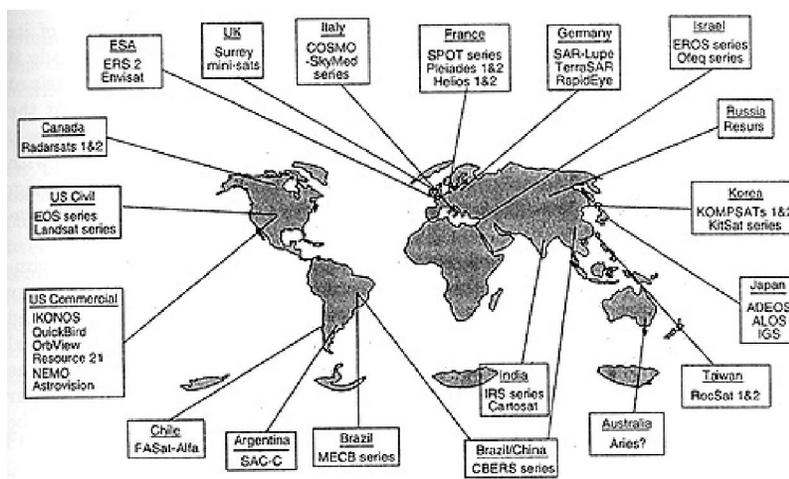
Disaster relief

- Mapping extent of disaster
- Damage assessment
- Relief coordination
- Evacuation

Disaster recovery

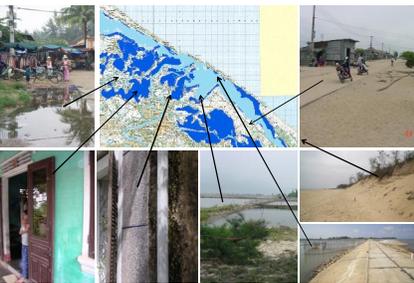
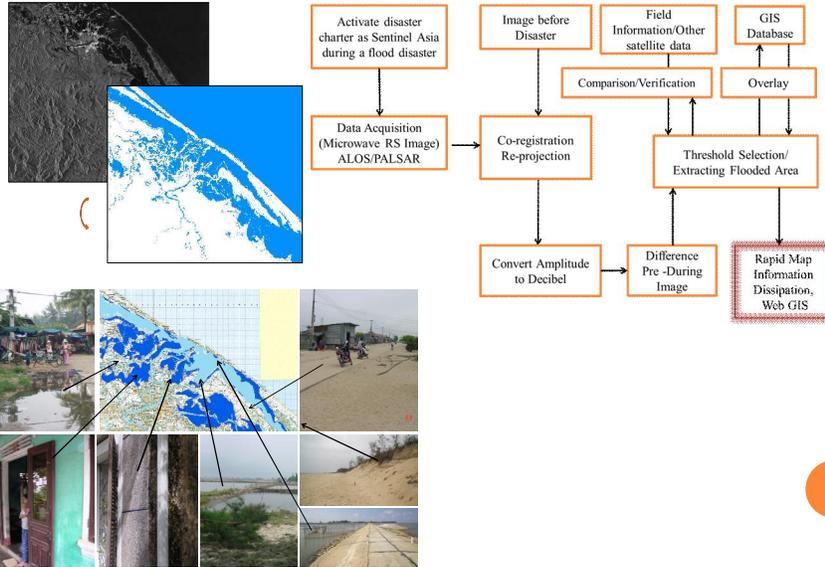
- Post-disaster census
- Identification of reconstruction sites
- Update hazard, vulnerability and risk data bases

DIFFERENT SATELLITES

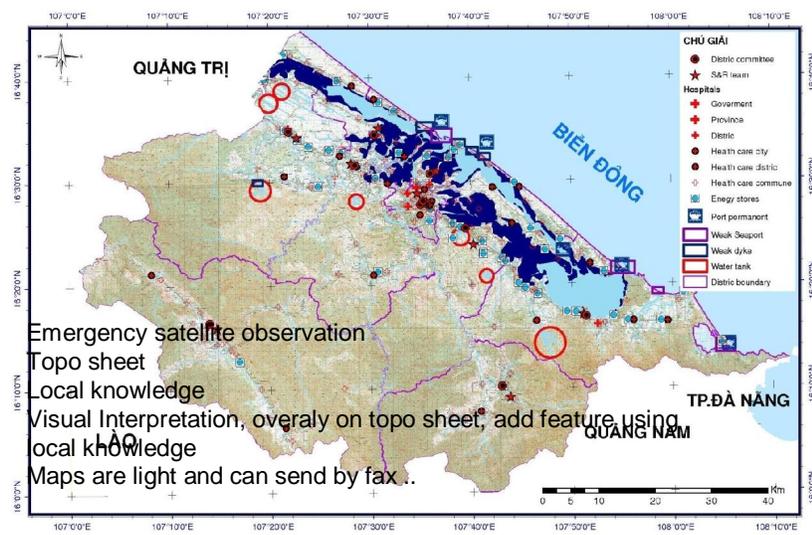


https://www.fas.org/irp/imint/docs/rst/Sect21/Sect21_1.html

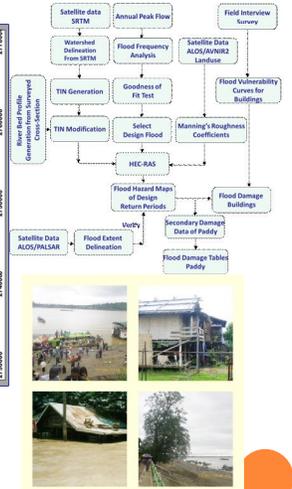
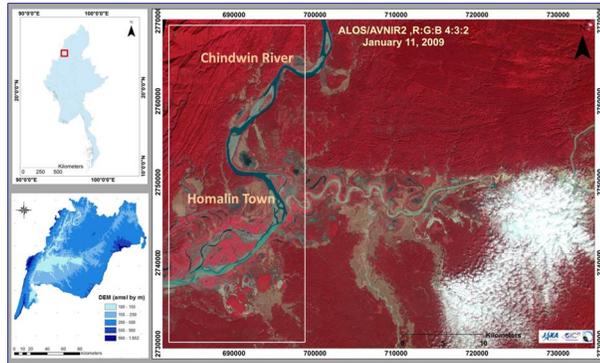
EMERGENCY RESPONSE



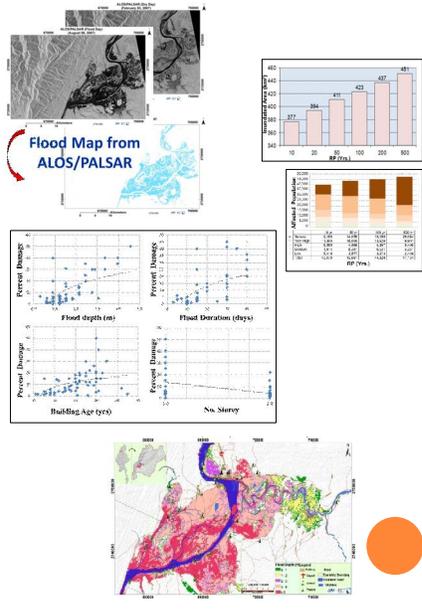
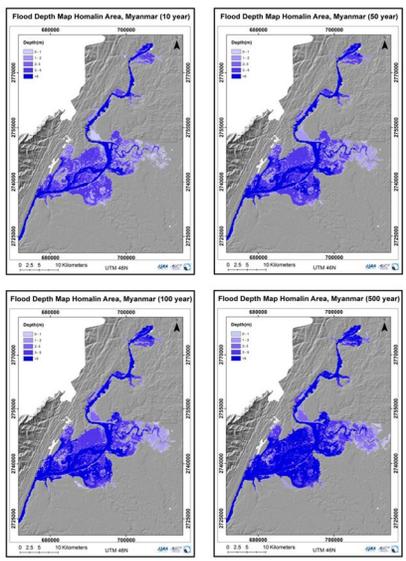
EMERGENCY RESPONSE



RIVER FLOOD ANALYSIS



RIVER FLOOD ANALYSIS



EMERGENCY OBSERVATION



Kalutara, Sri Lanka, Quick bird



Rikuzentakata, Iwate Prefecture, Japan, ASTER

EMERGENCY OBSERVATION

Thailand, October 31, 2011,
The Advanced Land Imager, (EO-1)



预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_6850

