



Radio and Climate Change

UN Conference on Climate Change

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Introduction to ITU

- World's oldest international organization (since 1865)
- UN lead agency on Information Communication Technologies (ICTs) since 1947
- Membership of 191 governments and over 700 private sector entities
- global coordination of radio frequency spectrum management and satellite orbits
- production of global high quality international regulations and standards covering all fields of information and communication technology
- technical assistance and human capacity building for deployment of telecom networks and services in developing countries

ITU's Engagement with Climate Change

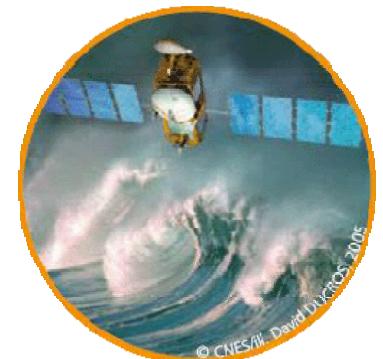
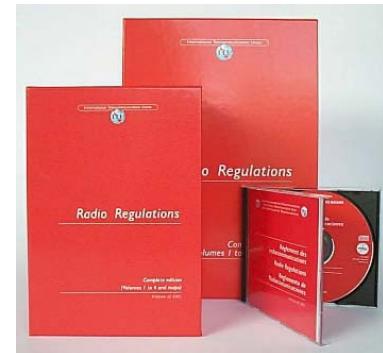
Main directions:

- Monitoring Climate Change
- Promotes ICT as a clean technology
- Adaptation and Mitigation
- Working toward Climate Neutral ITU
- Developing a methodology for ICT sector

ITU Radiocommunication Sector (ITU-R) and Climate Change

ITU-R:

- provides the radio frequency spectrum and satellite orbit resources for all types of radio systems including those used for climate and disaster monitoring and prediction;
- maintains international treaty (Radio Regulations) for non-interference operation of radiocommunication systems;
- develops new “green” technologies and standards (ITU-R Recommendations);
- together with other sectors provides guidance to Member States on the use “green” radio-based systems/applications.



Radio and Climate Monitoring

WMO World Weather Watch System

Radio related parts

spectrum
radio techn.
radiocommunications
telecommunications

Global Observing System

Global Telecommunication System

Global Data Processing System

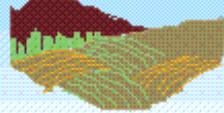
Disaster prevention organizations



Information media & general public



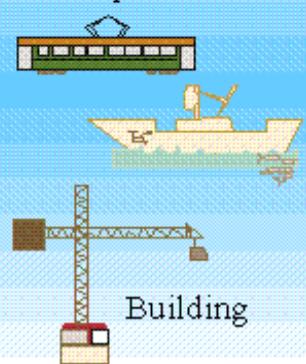
Agriculture



Environment & health



Transport



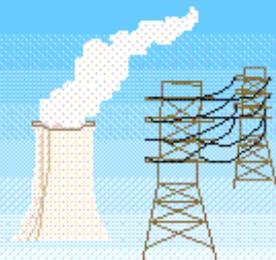
Building

Recreation & tourism



Water resources

Electrical utilities & energy

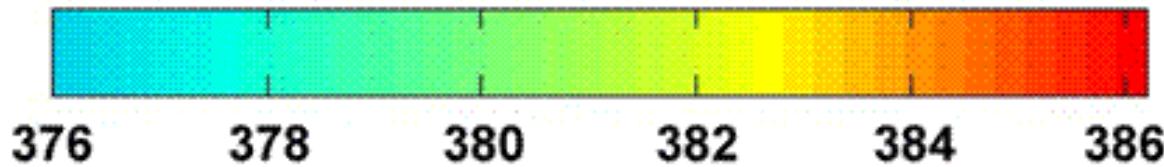
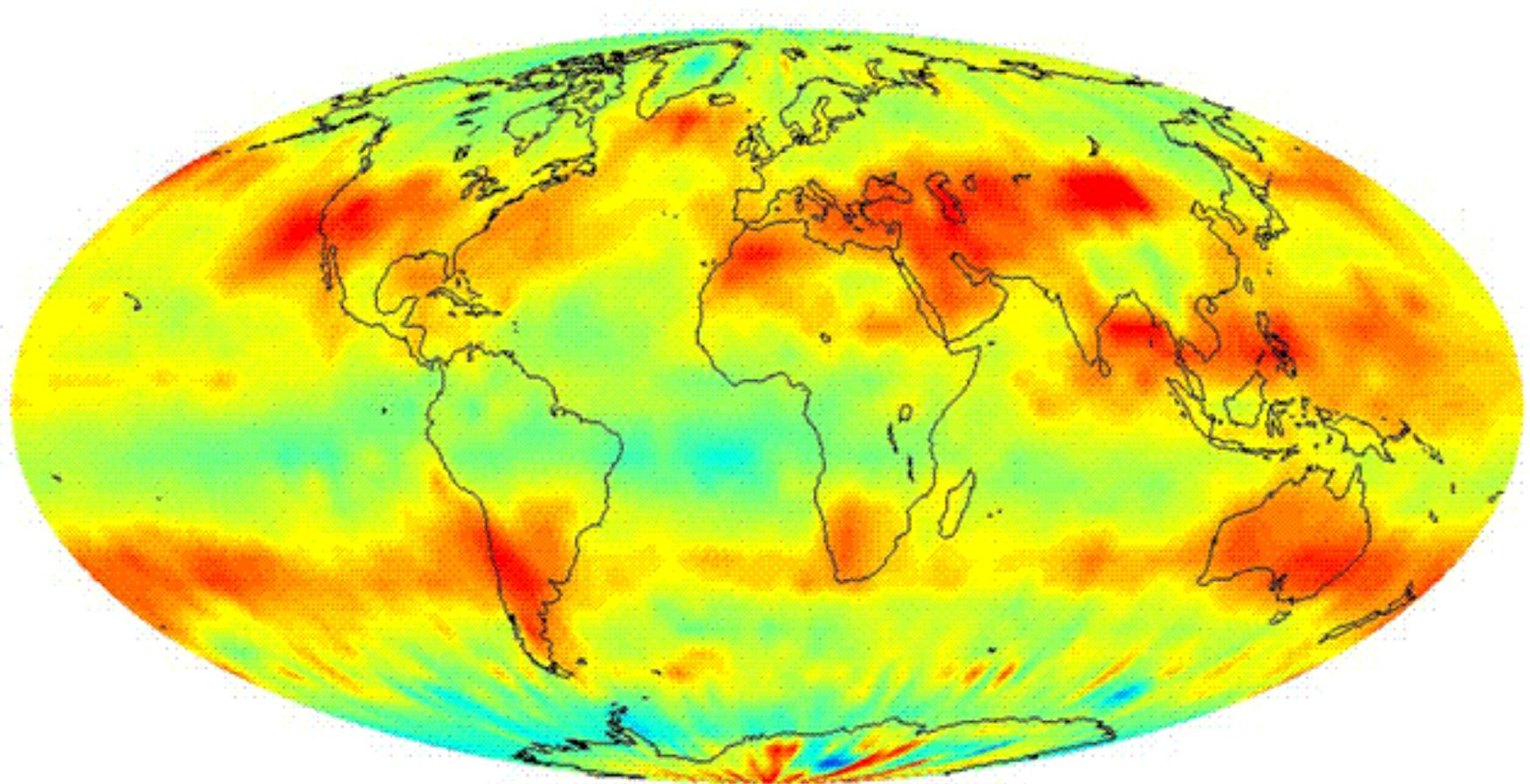


Radio-based Remote Sensing in Climate Monitoring

- Remote sensors are **the only tools** providing long term and global scale environmental data.
- Radio systems based on remote sensing play the major role in climate monitoring and weather forecasting.
- Remote sensing is the essential tool for disaster prediction, detection, disaster mitigation and planning of relief operations.

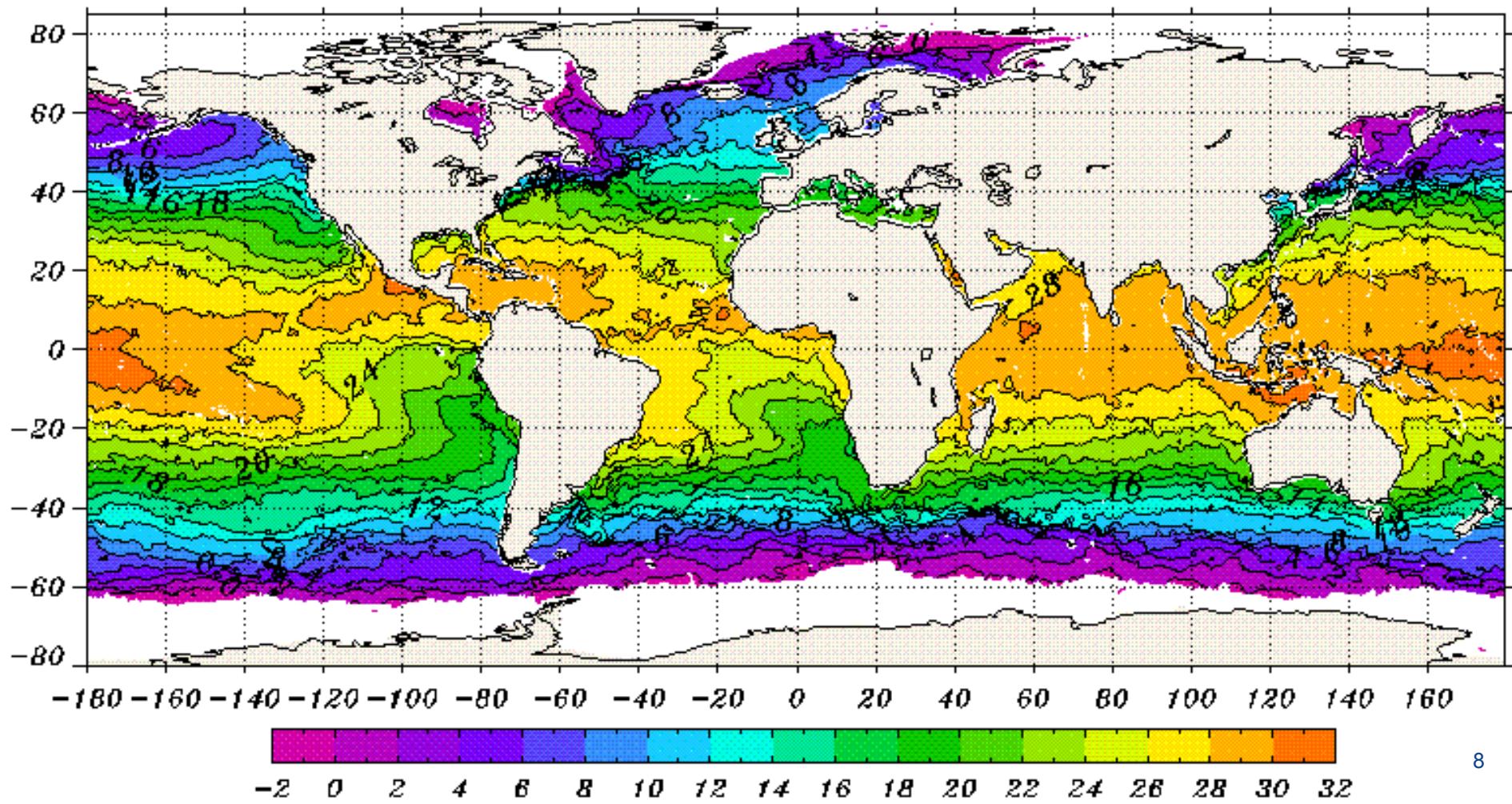


Radio and Climate Monitoring – CO₂ Concentration Measurement



Radio and Climate Monitoring – Sea Surface Temperature Measurement

The global control of the ocean temperature is being carried out by remote sensors from satellites.



Mitigation and Adaptation

Radio as Clean Technology

New radio technologies reduce GHG emissions.

Few samples:

- digital broadcasting transmitters consume almost 10 times less energy than analogue ones;
- less broadcasting transmitters required after switching from analogue to digital broadcasting;
- using recent new technologies and optimizing structure of radio systems/networks mobile operators are reducing power consumption up to 50% (there are >4.5 billions mobile subscriptions);
- new TV sets (>1.6 billions in use), set-top boxes consume significantly less energy even increasing screen size.

Mitigation and Adaptation

Radio Helps Reduce Emissions in Other Sectors

by:

- replacing business travel by video-conferencing and home-working using remote ICT equipment;
- “dematerialization” – replacing physical goods with virtual goods (electronic files instead of paper etc.);
- “dematerializing” wires – no need to waste energy, material and goods on physical connections;
- providing means for the development and use of intelligent transport systems employed for optimizing distance, journey time, reducing fuel consumption, parking guidance, etc.
- etc. etc.

Mitigation and Adaptation

Radio Saves Lives

Radio was used for the first time for saving the lives of hundreds of sailors and officers aboard the battleship General-Admiral Apraksin at the end of 19-th century.

Nowadays:

- information about climate-related disaster is obtained by remote sensing systems;
- it is submitted to relevant authorities;
- early warning signals are sent through wired and wireless telecommunication networks to general public.



Mitigation and Adaptation

Radio Saves Lives

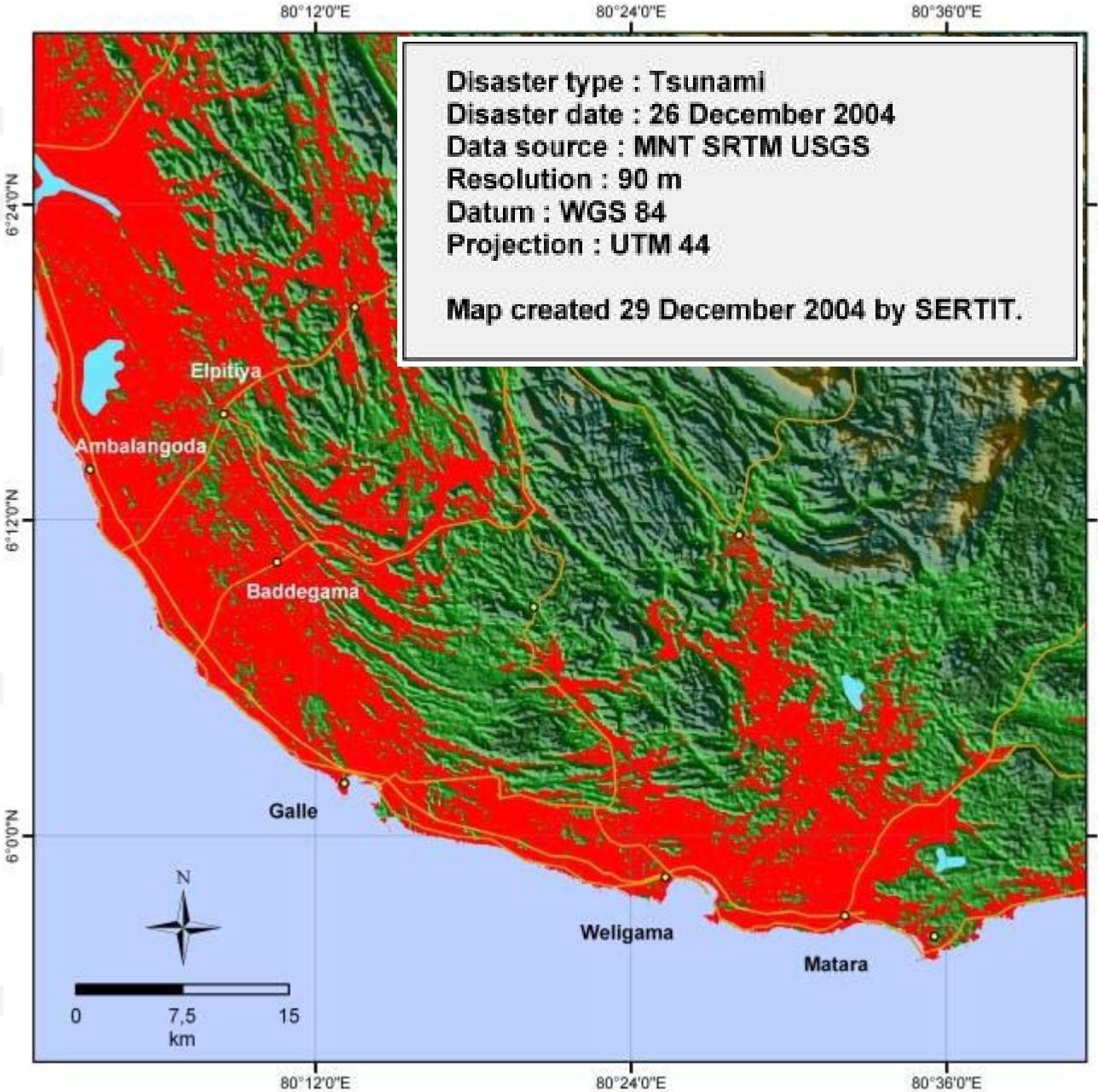
- In many cases, when disaster strikes the "wired" telecommunication infrastructure is significantly or completely destroyed, then only radiocommunication systems can be employed for disaster relief operation (especially satellite systems, radio amateurs, etc.);
- information for damage assessment and planning of relief operations mainly obtained by space remote sensing systems.



Damage Assessment used for relief operation planning

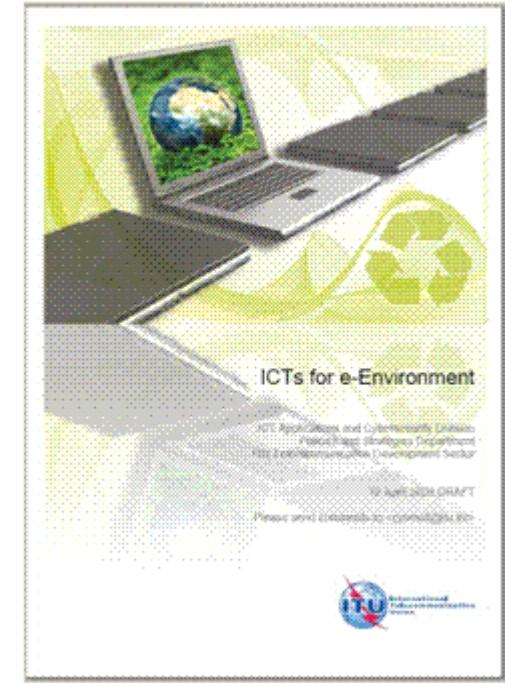
Sri Lanka
Galle area

Sri
Lanka



ITU's Guidelines – ICTs for e-Environment Report

- Objective: Provide guidelines for developing countries on the use of ICTs for better management and protection of the environment as a key part of their development process, with particular focus on **climate change**
- Examines six areas of ICT use: Environmental Observation, Analysis, Planning, Management & Protection, ICT Mitigation and Capacity Building
- **Recommendations for developing countries:**
 - Strengthen national analysis, planning and implementation
 - Use existing and new financial mechanisms
 - Foster technology transfer
 - Promote best practices
 - Promote Public-Private partnerships



Why ICTs?

ICTs (including radio technologies) are essential to:

- climate monitoring, disaster prediction, detection and mitigation of negative effects;
- climate change prediction and developing international and national adaptation Plans/Programs;
- mitigating climate change through reduction of GHG emissions produced by ICT equipment as well as emissions in other industries.

Studies estimate that ICTs can reduce total global emissions by 40% by 2050.

**That is why the ICTs role
should be recognized
in the new agreement!**



"Climate Change is a global challenge that the world cannot lose."

Dr Hamadoun I. Touré
ITU Secretary-General



"Climate change is the defining challenge of our era.

ITU's work to cut greenhouse gas emissions, develop standards and use 'e-environment' systems can speed up the global shift to a low-carbon economy.

Ban Ki-moon
United Nations Secretary-General

Some Background Materials

- ITU Climate Change site - www.itu.int/climate
- Climate Change symposia website
 - <http://www.itu.int/ITU-T/worksem/climatechange>
- ITU and Climate Change Report
 - www.itu.int/ITU-T/techwatch/reports.html
- ITU Background Paper on ICTs and Climate Change
 - http://www.itu.int/dms_pub/itu-t/oth/06/0F/T060F00600C0004PDFE.pdf
- ITU/WMO Handbook “Use of radio spectrum for meteorology: weather, water and climate monitoring and prediction” - <http://www.itu.int/publ/R-HDB-45/en>
- Report: “Utilization of ICT for disaster management, resources, and active and passive space-based sensing systems as they apply to disaster and emergency relief situations” - <http://www.itu.int/publ/D-STG-SG02.22-2010/en>