LIST OF THE PARTNERS: EUROPEAN PARTNERS

Prof. José-Luis Casanova, Dr. Abel Calle, Dr. Alfredo Romo, Drs Julia Sanz
REMOTE SENSING LABORATORY, LATUV
University of Valladolid, SPAIN

Prof. Johann Goldammer, Dr Claudia Scholz
GLOBAL FIRE MONITORING CENTER
University of Freiburg, GERMANY

Dr Federico González-Alonso
Remote Sensing Laboratory, INIA-CIFOR
National Institute of Agrarian Research, SPAIN

Dr Claudia Kuenzer, Dr Stefan Voigt, Dr Andrea Petrocchi
German Remote Sensing Data Center, DFD
German Aerospace Center, DLR, GERMANY
LIST OF THE PARTNERS: CHINESE PARTNERS

Prof. Li Zengyuan, Dr Qin Xianlin

INST. OF FOREST RESOURCES INFORMATION TECHNOLOGIES
THE CHINESE ACADEMY OF FORESTRY, CHINA
TOPICS PROPOSED

- Forest fire monitoring using **AATSR** and **MERIS** data
  - Forest Fire Risk
  - Hot Spot Detection and Analysis

- Burned area estimation by combined **ASAR** and **MERIS** data and existing Land use information
FOREST FIRE MONITORING DEMONSTRATION BY REMOTE SENSING IN CHINA

GENERAL SCHEME

HISTORICAL DATA

Local Data Recovery
Set-up of ENVISAT Images Pre-Treatment

Obtaining of ENVISAT Products.
Developing Operational Algorithms:
- RISK INDEX
- HOT SPOT DETECTION AND ANALYSIS
- BURNT AREA CARTOGRAPHY

To refine the Operational Algorithms

2003 Fires

2004 Fires

2005 Fires

2006 Fires

RS DATA
TEAMS EXPERIENCE AND TASKS (I/V)

REMOTE SENSING LABORATORY, LATUV
University of Valladolid, SPAIN

- RT Forest fire risk dissemination from 1994 is Spain
- FIREMEN - ESA
- Forest Fire Risk Estimation System (Argentina)
- FUEGO- Forest Fire Earth Watch: Mission Refinement
- FUEGO- Forest Fire Earth Watch: Algorithm Development
- EAU ET FEU (ESA-France)
- REMFI RESAT-ESA
- DEMOBI RD - ESA
- FORMA (CRTS-Maroc)
- CDMC, Crisis Data Management Centre
- World Fire Web JRC
- ...
REMOTE SENSING LABORATORY, LATUV
University of Valladolid, SPAIN

TASKS:

Project Management

Image pre-treatment: MERIS & AATSR

Fire risk index algorithm development

Hot spot algorithm development:
  Hot spot detection
  Fire temperature estimation
  Burning area estimation
  FRE estimation
GLOBAL FIRE MONITORING CENTER
University of Freiburg, GERMANY

- Early warning of fire danger
- Near-real time monitoring of fire events
- Interpretation and synthesis of fire information
- Archive of global fire information
- ...

TASKS:

- Interpretation and analysis of fire information
- Fire risk index evaluation
- Statistics of burnt area
- Validation of burnt area and cover changes
Remote Sensing Laboratory, INIA-CIFOR
National Institute of Agrarian Research, SPAIN

Spanish responsible on GMES User Requirements Committee
Spanish Validation of World Fire Atlas from ATSR
Coordinator of AECI Forest Fire Courses on Latin America
Elder Spanish Forest Fire Expert

TASKS:

Burnt area estimation: MERIS
Fire parameters evaluation
Risk index evaluation
FOREST FIRE MONITORING DEMONSTRATION BY REMOTE SENSING IN CHINA

TEAMS EXPERIENCE AND TASKS (IV/V)

German Remote Sensing Data Center, DFD
German Aerospace Center, DLR, GERMANY

- Automated Detection of Subtle Thermal Anomalies and their Quantification developed for Coal Fire Research in China

- Managing a Call of the “International Charter on Space and Major Disasters” Forest Fires in Portugal, August 2003

- ASAR Multi Incidence Angle Mapping For Vegetation Type Mapping An Option for Biomass Estimation

- BIRD Satellite

- ...
German Remote Sensing Data Center, DFD
German Aerospace Center, DLR, GERMANY

TASKS:

- Image pre-treatment: ASAR
- Biomass analysis for risk index estimation
- Burnt area estimation: ASAR
TEAM EXPERIENCE AND TASKS (V/V)

INST. OF FOREST RESOURCES INFORMATION TECHNIQUES
THE CHINESE ACADEMY OF FORESTRY, CHINA

Fire Monitoring and Assessment in Southwest Forest Region

A Research on Fast Evaluation System for Large Areas of Forest Fire

National Forest Fire Danger Forecast System

A Method and Demonstration for Monitoring of Vegetation Change and Vegetation Burning by Using MODIS Data
FOREST FIRE MONITORING DEMONSTRATION BY REMOTE SENSING IN CHINA

TEAMS EXPERIENCE AND TASKS (V/V)

INST. OF FOREST RESOURCES INFORMATION TECHNOLOGY
THE CHINESE ACADEMY OF FORESTRY, CHINA

TASKS:

To Provide Local Information
To Cooperate on Algorithm Development
To Validate the Developed Algorithms
To Accept, Adapt and Evaluate the Developed Methodology
20 ERS.SAR
48 ENVISAT.ASAR
280 ENVISAT.MERIS
AATSR Geophysical Product for Land
1. FIRST YEAR

1-1.- SELECTION OF A PILOT AREA.
By Chinese partners.
Scheduled from 1st to 3rd month.

1-2.- LOCAL DATA RECOVERY
If necessary, a Landsat image could be used for land cover mapping. By Chinese partners.
Scheduled from 4th to 6th month.

1-3.- SET UP OF MERIS, AATSR AND ASAR IMAGES PRE-TREATMENT
EU partners.
Scheduled from 1st to 6th month.

1-4.- LOCAL DATA ANALYSIS.
By Chinese and EU partners.
Scheduled from 7th to 12th month.

1-5.- OBTAINING OF MERIS, AATSR AND ASAR PRODUCTS
By EU and Chinese partners.
Scheduled from 7th to 12th month.

1-6.- TO HOLD A “PROGRESS MEETING”
2.- SECOND YEAR

2-1.- TO SET UP A RISK INDEX BY MEANS OF LOCAL DATA AND MERIS AND AATSR IMAGES.
   By EU and Chinese partners.
   Scheduled from 1st to 4th month.

2-2.- TO DEVELOP AN OPERATIONAL TECHNIQUE FOR HOT SPOTS DETECTION AND ANALYSIS.
   By EU and Chinese partners.
   Scheduled from 1st to 4th month.

2-3.- TO DEVELOP AN OPERATIONAL TECHNIQUE FOR BURNT AREA CARTOGRAPHY.
   By EU and Chinese partners.
   Scheduled from 1st to 4th month.

2-5.- TO APPLY THE DEVELOPED TECHNIQUES TO THE PILOT AREA.
   By Chinese and EU partners.
   Scheduled from 5th to 9th month.

2-6.- TO ANALYSE THE OPERATIONAL CAMPAIGN.
   By EU and Chinese partners.
   Scheduled from 10th to 12th month.

2-6.- TO HOLD A “PROGRESS MEETING”
3.- THIRD YEAR

3-1.- TO REFINE THE OPERATIONAL TECHNIQUES AFTER THE CAMPAIGN ANALYSIS.
By EU and Chinese partners.
Scheduled from 1st to 4th month.

3-2.- TO APPLY THE REFINED TECHNIQUES TO THE THIRD YEAR OPERATIONAL CAMPAIGN.
By Chinese and EU partners.
Scheduled from 5th to 9th month.

3-3.- TO ELABORATE THE FINAL CONCLUSIONS AND TO PREPARE THE FINAL REPORT.
By Chinese and EU partners.
Scheduled from 10th to 12th month.

3-4.- TO HOLD A "FINAL MEETING"
- European partners: 1 Meeting/ year
- European+Chinese partners: 1 Meeting/ year
- Mutual Progress Report : every three months

YEARLY SCHEDULE

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<th>KOM</th>
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<th>MTR EU Meeting</th>
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<th>Chinese/ EU Meeting</th>
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ESA Report

ESA Report
EXPECTED OUTCOME

OPERATIONAL ALGORITHMS TESTED AND READY TO:

GENERATE AN ADAPTED FOREST FIRE RISK INDEX

DETECT HOT SPOTS

EVALUATE FIRE PARAMETERS: TEMPERATURE, BURNING AREA AND FRE

DETERMINE BURNT AREA

BURNT AREA CARTOGRAPHY