Project Summary

ID 5345 - Coal Fires

Friday, 24th June 2011

Main Results

- the high-resolution TIR2 channels of the ASTER and (potentially) of the IRMSS sensors are recommended for coal fire monitoring since they provide a high sensitivity of ~1 MW/pixel to coal fires in the entire typical coal fire surface temperature range of 300 to 600 K

- using multi-temporal information allow a significant improvement of coal fire monitoring. The developed algorithm to estimate the surface heat balance has to be further tested and its parameters optimized for specific coal fire areas

- the developed risk assessment methodology and the ranking procedure of coal fields in different provinces, where coal fires have ever been indicate produces reliable results.

Issues and Recommendations

Although, quite some ground has already been covered in coal fire research and technology key open issues remain in the domain of risk analysis for those seams prone to coal fires in the long term and in securing extinguished coal seams. In order to avoid green house gas emissions in the long run, long term monitoring, observation and securing techniques needed to be developed, tested and implemented:

•monitoring and control measures for active mining areas associated with a certain risk of spontaneous coal fire ignitions due to geological deposit structure, natural boundary conditions and human activities, e.g. uncontrolled small scale mining,
•monitoring of untouched and unmined coal fields with a notable risk of spontaneous ignitions,
•effective and appropriate monitoring and control of successfully extinguished fire areas/zones to prevent a re-ignition on those coal fields driven by human activities.

List of Publications

ICCFR 2
Second International Conference on Coal Fire Research
19-21 May 2010
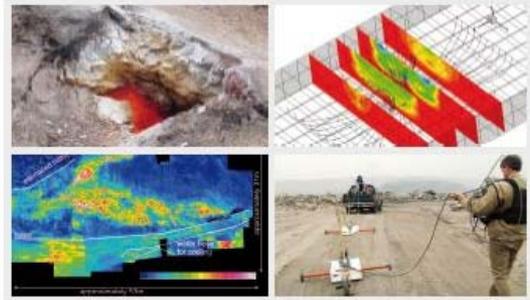dbb forum Berlin, Germany

| Conference Guide

As a man-made hazard affecting limited natural resources in specific locales as much as the atmosphere at large, spontaneous coal seam fires are a delicate object of scientific research. Their very complex nature responds to a whole range of disciplines and necessitates a concerted interdisciplinary and international effort for effective mitigation. This conference is a first step in this direction!

ICCFR2 is being organized by the Sino-German Coal Fire Research Initiative, in close cooperation with a BMZ/GTZ project working on fire fighting technologies. For more information visit: www.coalfire.caf.dlr.de | www.coalfire.org

| Latest Developments in Coal Fire Research
Bridging the Science, Economics, and Politics of a Global Disaster

Carsten Drebenstedt
Christian Fischer
Uwe Meyer
Wu Jianjun
Kong Bing

Conference Proceedings

-**Geosciences**

-**Material Research**

-**Remote Sensing**

-**Modeling**

-**Fire Fighting**

-**Mining**

-**CDM & Funding**

List of Publications

5 Manuals

- **Reconnaissance**
- **Modeling**
- **Fire Fighting**
- **Mining without Fires**
- **CDM**

Project Planning – 2011 and 2012

CBERS, HJ-1B

TET-1/ BIROS & Sentinel-2

Satellite: 100 kg class,
Cold gas propulsion system for orbit control (BIROS)
Sensor: CCD/CdHgTe
Channels: 2 IR channels at 3.8 and 8.9 µm, 3 channels in the optical range
Ground res.: 45 m / 360 m (VIS/IR)
Orbit: 560 km, sun synchronous
Swath width: 211 km/178 km (VIS/IR)
Detection limit: a couple of m2
Launch: 2011/2012