



ESA - MOST Dragon 2 Programme

2011 DRAGON 2 SYMPOSIUM

中国科技部-欧洲空间局合作“龙计划”二期

“龙计划”二期2011年学术研讨会

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

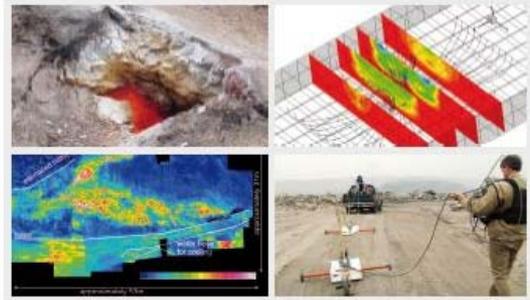
As a man-made hazard affecting limited natural resources in specific locales as much as the atmosphere at large, spontaneous coal seam fires are a delicate object of scientific research. Their very complex nature responds to a whole range of disciplines and necessitates a concerted interdisciplinary 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.ccf.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

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

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. The repercussions of the phenomenon spread right into the realm of society and politics.

The Second International Conference on Coal Fire Research (ICCFR2), held in Berlin, Germany, from 19 to 21 May 2010, aimed to provide the background knowledge which is needed for successful coal fire detection, monitoring, fighting, and environmental assessment. Targeting a problem of truly global concern, these tasks require above all sound scientific handling and expertise. ICCFR2, hence, was designed to rally the international vanguard of coal fire research. With a line-up of more than 80 top international speakers, surveying the entire terrain, from Geosciences and Materials Research, Remote Sensing and Modeling to Fire Fighting and Mining, as well as CDM & Funding, and more than 120 delegates from all over the world, the conference was an eminent success. This volume is its written outcome and reflects the current scientific state of the art.

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Sino-German Research Initiative

Coal Fire Handbook
Remote and Ground Based Methods for Reconnaissance
and Monitoring of Near Surface Coal Fires

Coal Fire Handbook

Remote and Ground Based Methods for
Reconnaissance and Monitoring of
Near Surface Coal Fires



Uwe Meyer
Christian Fischer
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Sino-German
Research Initiative

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

