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Gas and temperature measurements on Xingjian coal field fires

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Up to know no robust methodology has been established that allows the estimation of coal loss – and the associated CO2 emissions - based on temperature and / or gas emission measurements. Such knowledge is a prerequisite for an aimed at accreditation for coal fire extinction measures within the clean development mechanism (CDM) context under the frame of the Kyoto protocol.

During a field campaign in Xinjiang extended measurements on a specific coal fire site were performed to proof so far developed estimations for exhaust gas volumes. The investigations show that during the evaluation of gas emissions, based on preliminary data, an inconsistency between measured and calculated gas emissions for the fire area was observed. Therefore temperature measurements on a dense grid have been done as well, taking also faults and cracks into account, to analyse how these measurements correlate with the gas measurements.

In addition, the temperature measurements that have been done serve as reference data sets for the analysis of thermal satellite images taken by the ASTER satellite sensor system. Ongoing research focuses on the development of robust routines to detect coal fires and to quantify the amount of the coal fire related radiative energy release (CFRE).