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Estimtion of the Energy Release of Coal Seam Fires and its Relevance for CDM

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Spontaneous coal seam fires contribute significant to the CO2 emissions world wide. As the coal fires are complicated regarding structure and dynamics it is not trivial to fins out how much CO2 is released by an individual fire. This value is basic also for a possible certificate trading in connection with the extinction of those fires in the context of CDM.
Three basic methods were proposed to estimate the amount of CO2 emitted.
1. Direct gas measurements (direct approach)
2. Estimation of the coal burned (volume approach)
3. Energy releases (energy approach)
The energy approach turned out to be the only practical solution. The energy balance of the fire is a composition of the components
1. Radiation
2. Energy release from subsurface to air
3. Energy transported by hot exhaust gases
4. Energy transported by matrix diffusion
Those components are explained and a field case from a fire zone in China is presented.