

**GOFC Session on Fire Early Warning Systems,
University of Alcala, Spain, Dec 5 2009**

Attendees: Bill De Groot, Jesus San Miguel, Emilio Chuvieco, Johann Goldammer, Ivan Csiszar, Isabel Cruz, Tim Lynham, Andrea Camia, Susan Ustin, Karen Steenkamp, Phil Zylstra, Domingos X Viella, Marta Yebra, Chris Justice.

Objective: The session was held to assess the status of the GOFC-GOLD Fire Early Warning System activity, to identify new contributory projects and develop a 12 month work plan. The session followed a 2-day technical workshop on various aspects of fire danger and fire risk.

Background: The Global Fire Early Warning System (EWS) initiative has its roots in the UN ISDR Wildland Fire Advisory Group and a proposal to develop a global system submitted by Johann Goldammer (GFMC), Bill de Groot, Tim Lynham and Ivan Csiszar, which was presented at the UNISDR-sponsored Third International Conference on Early Warning (Bonn, March 2006) and endorsed by the ISDR Secretariat but never funded. A number of overtures were made by the GFMC to get the proposal funded without success. The Global Fire EWS Initiative was adopted by the GOFC-Fire IT. In Nov. 2007, GOFC led a workshop on Requirements for Fire Early Warning Systems in Africa in conjunction with the 2nd West Africa Regional Network Meeting (University of Ghana, Accra). At that meeting a Sub-Saharan Africa EWS prototype was presented. Following that, a Fire Danger Workshop was subsequently hosted in Edmonton (July 2008) by the GOFC Secretariat, supported by CFS and WMO. Meeting reports and compiled papers for the Accra and Edmonton workshops are pending. The Global Fire Early Warning System is currently one of the priority areas for the GOFC Fire IT. A Global Fire Early Warning System Task was adopted by the Global Earth Observing System of Systems under the Disaster Societal Benefit Area as Task DI0903b.

Summary of the Meeting : Chris Justice presented the current status and priority areas for the GOFC-Fire IT. Bill De Groot showed the new Website for the Global EWS and Johann Goldammer gave an update of the Early Warning initiative. Bill presented a demonstration of Regional EWS products and fire management applications using the extreme fire conditions of Sept 2008 in southern Africa as an example. This was initiated following the GOFC West Africa Regional Network (WARN) Meeting in Accra. Further discussion of these products and how to proceed is planned for the Development of a SADC Cross-border Fire Management Programme workshop in Maputo, Mozambique end of January 2010. The CFS indicated the desire to expand their prototyping activity through a series of Regional EWS pilots.

Jesus San Miguel presented a summary of the EFFIS Program for Europe and outlined the charge from the European Commission to expand this activity to the global level and the plan to develop a partnership with ECMWF on this topic. A feasibility study is underway concerning

global implementation of a Fire Danger System at the JRC. The evaluation and scoping would be completed in 9-12 months. The JRC group welcomes cooperation on this activity in the framework of GOFC-GOLD.

Emilio Chuvieco summarized the global component of the FireGlobe Project with its unique emphasis on Global Fire Risk and Vulnerability and identified a number of available global data sets. He identified the inadequacy of global fuel type maps and fuel moisture content data. Isabel Cruz presented the Latin America Fire Danger activity being initiated by REDLATIF. Karen Steenkamp summarized the regional fire danger study underway by the CSIR in South Africa.

Discussion and Associated Actions: After a brief discussion of different opportunities and based on the various discussions on the global initiative from the previous two days, Chris Justice summarized a possible way forward. It was agreed that there remains a need for a global harmonized product which includes a satellite observation component and recognition that in those countries where adequate operational Fire Danger Rating Systems exist, a new global FDRS would unlikely be used. However, the Global EWS (which is essentially a global FDRS with a 7-14 day forecast of future fire danger) could provide countries with existing FDRS, additional forecast information (as most countries only forecast to 3 or 7 days maximum) plus other satellite observation enhancements that are currently unavailable to them for operational use.

The approach will be to have an integrated global system that supports countries with existing FDRS, and provides fire danger and early warning information to the many countries that do not. Global level fire danger and early warning will be provided to all countries and international agencies for large-scale information and decision-making. To reach national and sub-national levels, the Global EWS will be developed with emphasis on refining data inputs and methods through a series of pilot projects with regional partners. This would build on the previous work by CFS establishing the Canadian FDRS in various regions of the globe e.g. South East Asia.

With the emergence of a potential new Global Fire Danger initiative at the JRC, this provides the best opportunity for a funded global product in the near term. The proposed linkage to an operational partner at ECMWF for provision of Fire Weather Data has considerable appeal. With the stated interest from JRC in fostering international cooperation around this task through GOFC such a base product could be used to develop value added products by the community using satellite data. However it was suggested that Ivan Csiszar explore the interest of NOAA in providing Fire Weather Data and the reason for the discontinuation of the CPC Product and that Tim Lynham and Bill de Groot should follow up initial contacts with the Canadian Meteorological Centre.

Emilio Chuvieco was charged with starting a GOFC activity to develop an improved satellite-based global fuel type/characteristics map. A connection needs to be made with Curtis Woodcock from the Land Cover Implementation Team on the status of their 'Best Available Land Cover Product'. Given the routinely available satellite products and the increasing access

to near real time data, it was felt that satellite data can now be used to enhance the standard fire danger products derived from meteorological data only. The inclusion of satellite products into the Fire Danger approach is a topic for increased attention by the GOFC community.

Expanding participation in this task would be a topic for discussion at the GOFC Implementation Team meeting in Frascati. Ivan Csiszar, Susan Ustin and Marta Yebra will develop a white paper on data sets for Fuel Moisture Content in response to a request from NOAA and the CEOS Disasters Working Group. Emilio Chuvieco will propose a new initiative at the GOFC Implementation Team meeting in Frascati to compile a global fuel moisture data base that individuals can contribute their individual, geolocated measurements.

It was proposed that Jesus San Miguel and Andrea Camia host a Global Fire Danger Workshop (in the framework of GOFC-GOLD) following the completion of their feasibility study (end of 2010), inviting the various global players and regional partners that would be interested in helping develop a viable 'community' global product. Domingos X Viella offered that such a workshop could be held in conjunction with the VI International Conference of Forest Fire Research in Coimbra, Portugal (Nov 15-18, 2010). Additionally a meeting between the members of the SERENA project (fire risk index team) will be held before this conference. In this way, some results of the work of this team could be also discussed in the Global Fire Danger Workshop that will be held at the time of the conference.

It was agreed that regional prototyping needs to continue with an emphasis on adapting the Canadian FDRS to different regional conditions and improving the input data sets through a series of pilot studies. It was suggested that Bill de Groot continue to work on prototyping in sub-Saharan Africa, making a link to the CSIR initiative and that Johann would explore funding opportunities through SADC. It was also suggested to follow up on developing similar activities in Latin America: in Mexico with Isabel and Argentina with Carlos. Bill and Tim would explore opportunities for leveraging CFS connections with these two countries and to contact Canada GEO (and its GEO in the Americas partnership with the US) and the Canadian Space Agency to explore developing a Latin America regional Fire Danger prototyping initiative that will combine the current EO fire danger products in Latin America with meteorologically-based products from the Canadian FDRS, and to do so within the framework of the GEO Fire EWS Task. Isabel will contact Alfredo Nolasco to discuss a potential Conafor-Conabio collaborative approach to pursuing this initiative. Bill de Groot will discuss with NAFC Fire Mgt. working Group members to see if it is possible for Canada and US to assist Mexico via the NAFC.

Chris asked Bill de Groot, Jesus San Miguel and Emilio Chuvieco, as Fire IT Members, to co-lead the GOFC Fire Early Warning System initiative and develop a short presentation for the Frascati Workshop (March 23-25, 2010). Chris also asked individuals from the group with existing good contacts to strengthen project Strategic Partnerships to foster supporting for implementation of the Global Fire EWS and the regional component activities i.e. ISDR and ITTO (Johann), GEO (Chris, Jesus San Miguel and Bill) and FAO (Jesus San Miguel). Chris on behalf of the Fire IT, will

organize a telecon with GEO Sec to develop better understanding of the state of the task and what support will be needed from the GEO Secretariat.