The Controlled Burning System (SQC) of the Guatemalan Sugar Industry

Abstract

At the end of 2013, the Association of Guatemalan Sugar Producers -ASAZGUA-, approved a project to develop a Controlled Burning System (SQC) -acronym in Spanish, taking the model that was developed in Colombia as the reference. The SQC, was developed by the ICC and it has three components: 1) Research the behavior of the cinder generated by sugarcane burnings considering the meteorological conditions to generate technical-scientific baselines that allow modeling each burning; 2) Identify sensitive zones in southern Guatemala where cinder can cause impacts; and 3) Create a dynamic and automatic system to model and register cinder's dispersion and its possible impact in the identified sensitive areas.

During the harvest seasons of 2013-2014 and 2014-2015, several on-site experiments were developed, monitoring the meteorological conditions, the area to be burned, duration of burning, and cinder's displacement, which was measured with "cinderometers". These devices use contact paper for cinder to stick on it. 46 experiments were performed during the two harvest seasons, creating six equations that allowed modeling the behavior of each burning, taking meteorological conditions as the reference. The equations generated are: a) duration of the sugarcane burning; b) cinder's flight time; c) displacement of cinder types "A", "B" or "C"; d) angle of cinder's dispersion.

The main sensitive areas that were identified and where cinder can cause any kind of impact are: a) towns; b) asphalt roads; c) a 2 km fringe along the shore of the Pacific ocean and: d) airports and touristic venues in southern Guatemala.

Based on this, an Android APP was developed, integrating the technical-scientific bases that were generated in the component 1, as well as the sensitive zones in the component 2. This system was initially called "SQC" and uses an Android app that is interconnected to the ICC Weather Station Network, which registers the meteorological variables every 15 minutes. This makes this app to model cinder's dispersion in real time. The system is automatic and dynamic as well.

Keywords: SQC application, wind speed, weather station, cinder, sensitive zones, cinder's dispersion.

Disclaimer: This abstract is a translation of its Spanish counterpart *"SISTEMA DE QUEMAS CONTROLADAS (SQC) DE LA AGROINDUSTRIA AZUCARERA DE GUATEMALA"* published on the official website of the ICC. To view the original document, please visit http://icc.org.gt/wp-content/uploads/2016/08/20160830-Sistema-de-Quemas-Controladas-28SQC29-de-la-AIA.pdf