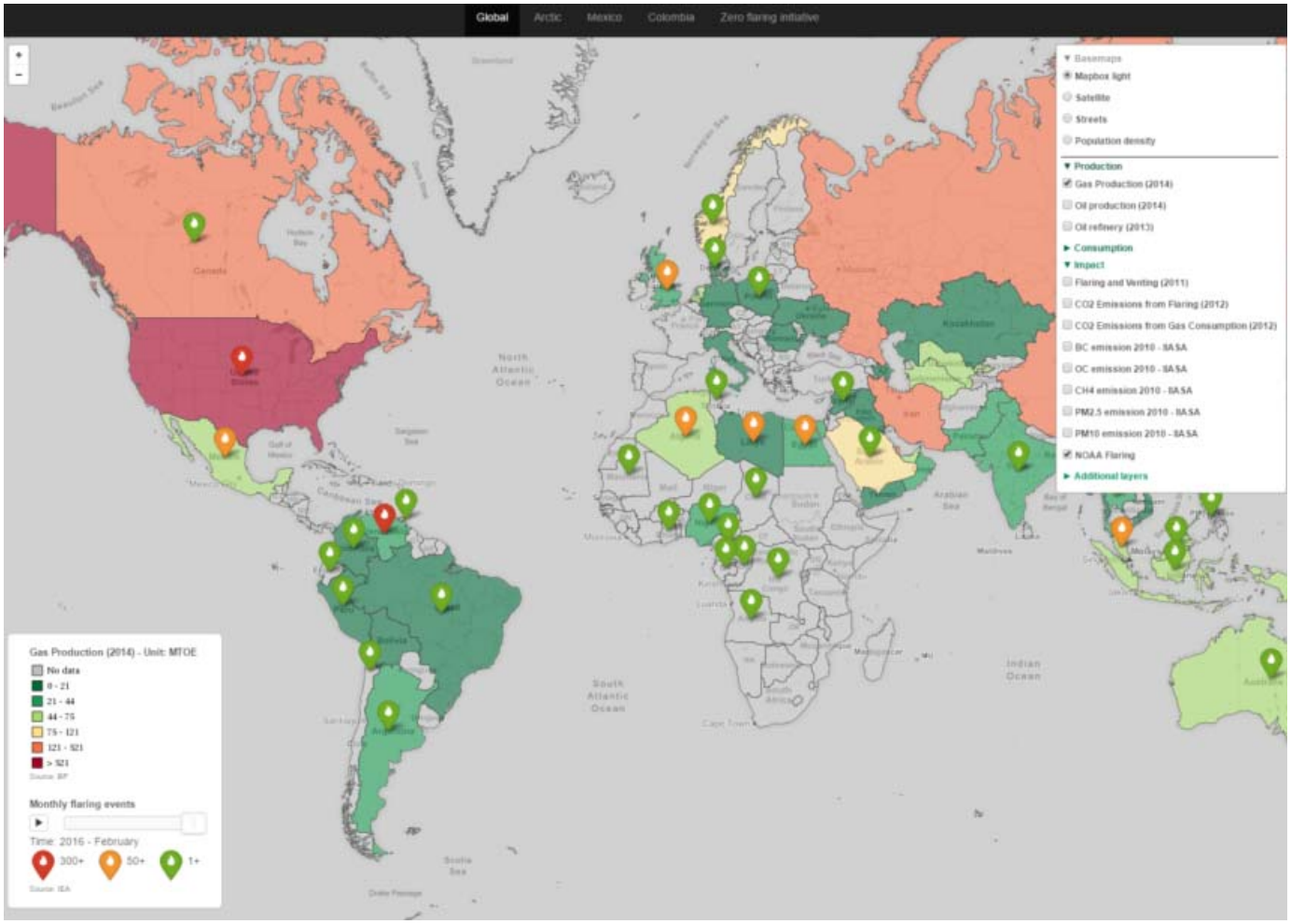
CLIMATE AND CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

Fact Sheet

GLOBAL FLARING WEB PLATFORM



Introduction

The global flaring web platform provides a synthesis of datasets related to flaring activity by the oil and gas industry. It uses freely available data from national inventories and other publicly available sources. It also includes data on oil and gas production and related carbon dioxide emissions. It is to be used as an on-going inventory of flaring so that as more countries and oil companies provide information the platform will be updated.

Mapping platform

There are three main components to the mapping interface:

- Global overview maps
- Country level spatial data
- Associated graphs/tables

The platform is built on an open source GIS stack running on Linux. GeoServer is used to display the data over the web and transfer data directly to users' browser if needed. It complies with common web-based GIS standards, including Web Map Service (WMS) and Web Feature Service (WFS). On the client side, the web interface displays images and data from GeoServer using Mapbox, which also provides the base maps and enables user interactions. Time series data are visualized as appropriate charts using Google Chart API.

Location of Satellite recorded flares

The main source of data for the platform is from Skytruth.org who have compiled data from NOAA for its own portal. This is an excellent resource for detailed flaring. The purpose of this platform is to provide an overview of flaring activity occurring globally aggregating the Skytruth data as monthly values (flare count) which are then displayed for each country.

Zooming in to a country displays the spatial location of the flares and their characteristics observed by the data.

Add additional layers for interpretations

Different basemaps can be displayed to aid visual interpretation. These include population density, and Open Street Map layers. Thematic information is presented as a layer on top of the basemap and includes national data on total flaring (yearly totals) and oil and gas production. National time-series data are displayed where data is available as graphs. This is shown as on a monthly/yearly time-step depending on the data origin.

Additional contextual information is provided showing locations of oil fields and urban areas. Two detailed views highlight data for Mexico and Colombia which are two focal countries of the CCAC.

Arctic Map of flaring from satellite.

Recent scientific evidence indicates that black carbon in the Arctic has a major climate change impact (Stohl et al , 2012). Emissions from the oil and gas industry are prevalent in the region. Therefore, further expansion of the industry in the Arctic raises serious concern. The platform therefore provides an alternative map to aid visualization of flaring activity in the Arctic.

Map of signatory countries

The mapping platform also serves the purpose of being a repository of other spatial data related to flaring including an updated list of signatory countries to the World Bank/UN Zero Routine Flaring Initiative. The aim of this is to be able to monitor progress in reducing flaring. Platform users can click on one of the markers related to those who have signed up to the initiative and data on current and historic flaring (2010 base year) if available; national policy/corporate policy on flaring.

The CCAC is working with countries and oil companies to find alternatives to flaring.

Monitoring of progress – to future

There is limited data available on flaring activity. This stems from the fact that oil companies are not obliged to provide detailed accounts of flaring and are often inaccurate due to lack of monitoring, poor measurement and mis-reporting. Countries do not have to report flaring data to a statutory body e.g. United Nations' Framework on Climate Change Committee (UNFCCC). The primary global data source is the World Bank's Global Gas Flaring Reduction (GGFR) initiative – however data is not easily accessible and is only available to 2012. Other databases are only available on a subscription basis and would not be accessible for all to use on the platform.

Improvements to the platform

There is still uncertainty regarding the quantification of flare emissions from satellite data. The platform provides map layers showing modelled black carbon, particulate matter and methane data from the IIASA Eclipse database Klimont, 2016) as an aid for visualizing where emissions are located. Improvements to national inventories to accurately report flaring activity is required. In addition improvements to the science basis on which to categorize emission factors for different types of flaring is also needed.

Use of new technology such as nano-satellites may help in identifying flares and quantifying emission sources.

Measuring flares

There are several ways to assess emissions from flares however these are costly and sometimes difficult to implement at individual oil wells. These include measurement devices on the flare stack/burner and use of video technology (SKY-LOSA) to assess black carbon emissions (Johnson, 2013) which has proved to be accurate. As an alternative to these measurements, satellite data provides a near daily global coverage but with less accuracy. In addition, there is higher uncertainty in the flare signal due to high saturation in pixel values. There is also no current method to assess the concentration of black carbon from satellite as details on the hydrocarbon composition of the gas cannot be measured. Elvidge (2016) highlights the current scientific capability in flare detection from remote sensing and provides a dataset from 2012.

References:

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