

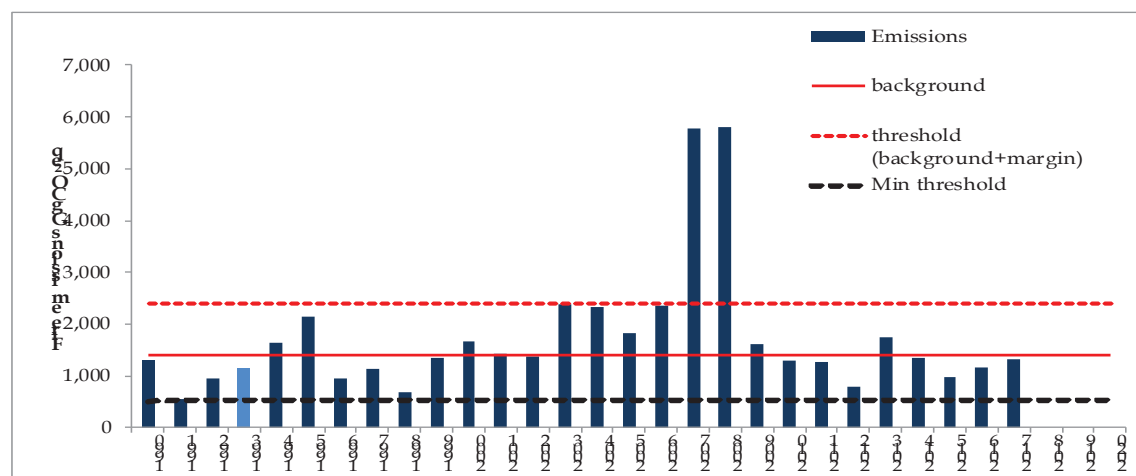


environment, forestry & fisheries

Department:
Environment, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Box A.2: The natural disturbance example

The forest areas subject to fire (**Error! Reference source not found.**) were used to calculate CO₂eq. emissions for the period 1990-2017 using IPCC tier 1 methods and emission factors. The background level is calculated as the mean and the margin is the standard deviation. Outliers are removed from the data set for any given year if the annual emission is greater than the background plus 2 times the margin value (IPCC, 2014). The background and margin values are then recalculated until all outliers are removed. The reference threshold is then determined as the background plus 2 times the margin, when there are no outliers in the calibration dataset (see figure below).



In this figure 2007 and 2008 are outliers and these were removed before the final threshold (margin plus background) were estimated). When emissions from fire are greater than the threshold (ca. 2513 Gg CO₂eq) emissions will be excluded from accounting under the natural disturbance provision.

An alternative approach, and one better suited for situations where calibration data is limited, is the minimum background threshold (IPCC, 2104). The threshold is determined as the minimum emission value observed over the time series. In this example the threshold will be 575 Gg CO₂eq (black line in the figure).

It is proposed that the minimum threshold may be more suitable under the C Tax Act if calibration data for each registered company is to be collected and reported over the next 5 years. In this case, the threshold can be defined as the minimum emission from natural disturbances over the period 2020-2024.