

# Supplementary Materials: Estimates of Global Forest Fire Carbon Emissions Using FY-3 Active Fires Product

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**Table 1.** FY-3 series satellite data presentation.

satellite	Time Resolution	Spatial Resolution	Equator crossing time	Track Height	Data Availability
FY-3B	1 Day	1 Km	13:40	836 Km	2010-12-14 2020-05-31
FY-3C	1 Day	1 Km	10:15	836 Km	2014-05-30 2020-02-03
FY-3D	1 Day	1 Km	14:00	831 Km	2019-05-01 2023-10-03

In this study, data from three satellites, FY-3B FY-3C as well as FY-3B, are mainly used for estimation. In order to avoid duplicated monitoring due to multiple satellite data during the estimation process, we filtered the daily available data, we filtered the daily multiple satellite detections with one kilometre resolution, and if other satellite detections existed within one kilometre of the detection fire point, they were marked as duplicated detections for deletion and if no detection existed, they were added.

$$TSS = \sum_{i=1}^n (y_i - \bar{y})^2 \quad (1)$$

$$RSS = \sum_{i=1}^n (\hat{y}_i - \bar{y})^2 \quad (2)$$

$$ESS = \sum_{i=1}^n (y_i - \hat{y}_i)^2 \quad (3)$$

$$R^2 = 1 - \frac{ESS}{TSS} = \frac{RSS}{TSS} = 1 - \frac{\sum_{i=1}^n (y_i - \hat{y}_i)^2}{\sum_{i=1}^n (y_i - \bar{y})^2} \quad (4)$$

In the process of comparing the results of this study with other lists of the same type, we firstly obtained the linear fit curve between the results of this study and the results of other studies by linear fitting, and secondly calculated  $R^2$  by using equations 1, 2, 3 and 4. where  $y_i$  is the result of the assessment of this study,  $\bar{y}$  is the value predicted by the linear fit curve,  $\hat{y}_i$  is the mean value, and  $n$  is the size of the statistical data set. The  $R^2$  value is an indicator of the superiority of a linearly fitted curve, and its value is close to 1, which indicates that the results of this study have a high correlation with the other comparative datasets.