

CHIBA CAMPAIGN 2021

7/26 – 8/8



Report (2021/08/09)

► Cloud screening

by using CI from sky radiometer

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MAX-DOAS
Measurement Directions



Irie et al., 2017

Color Ratio from Sky radiometer

天頂方向のcloud screening方法のテスト

➤ 方法

• $CI > 3$ or $CV > 0.1$ → 雲の可能性が高い (CF High)

• $CI < 3$ & $CV < 0.1$ → 雲の可能性が低い (CF Low)

+従来の方法($CF=0$)

Color Ratio(CI)

$$CI = \frac{R_{\text{Longwave}}}{R_{\text{shortwave}}} = \frac{R_{500}}{R_{400}}$$

R : radiance

$$R_{500} = F_0(500) \times V$$

$$R_{400} = F_0(400) \times V$$

where,

$$F_0(400\text{nm}) = 1.23\text{e-}04,$$

$$F_0(500\text{nm}) = 2.34\text{e-}04$$

Coefficient of Variation (CV)

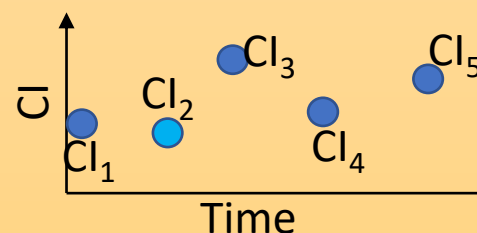
$$CV = \frac{\sigma}{\bar{x}}$$

σ : standard deviation

\bar{x} : average

▶ 平均値に対する
データのばらつきを
示す (無次元)

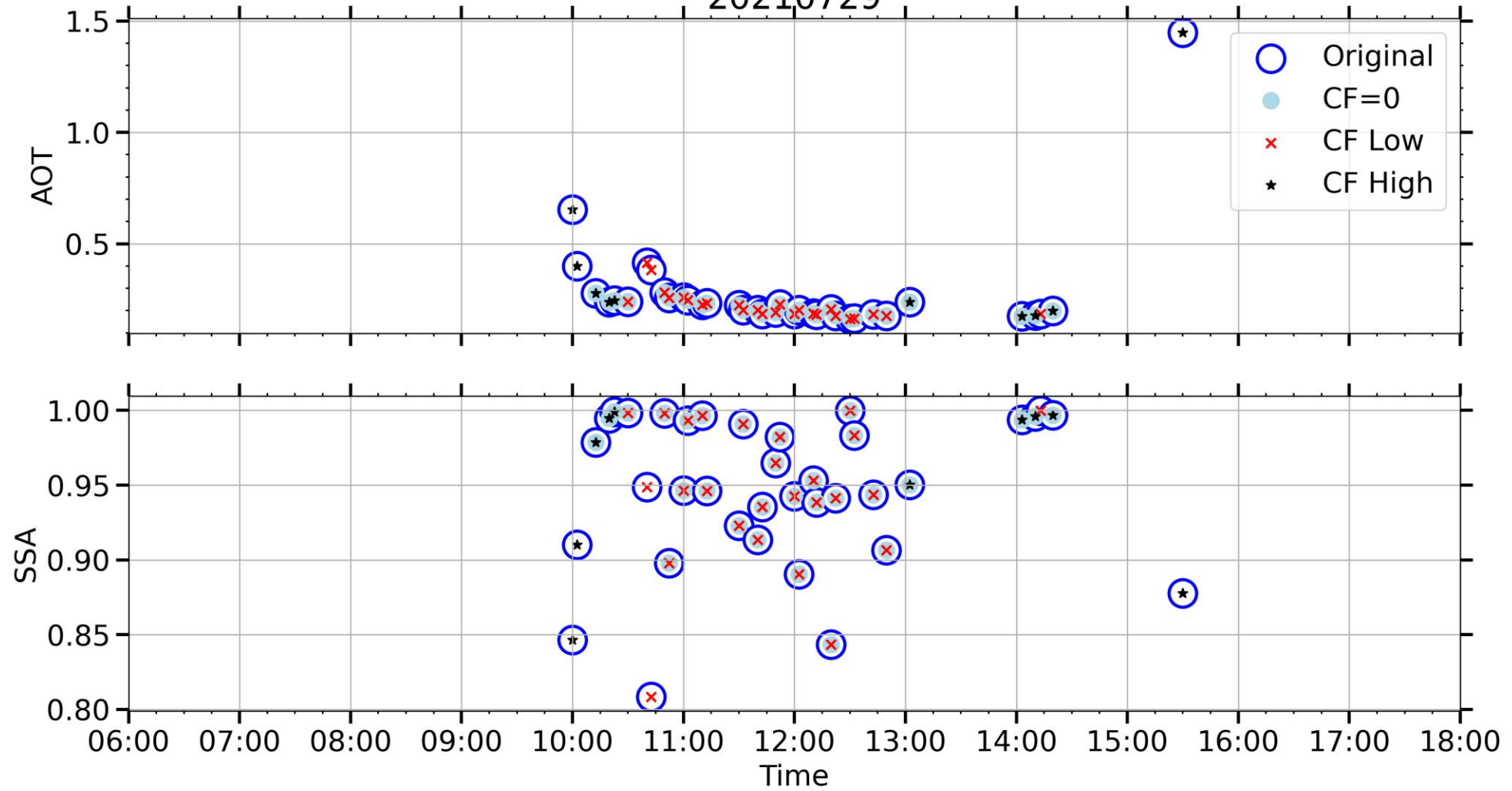
(e.g.) CI_2 における CV は、

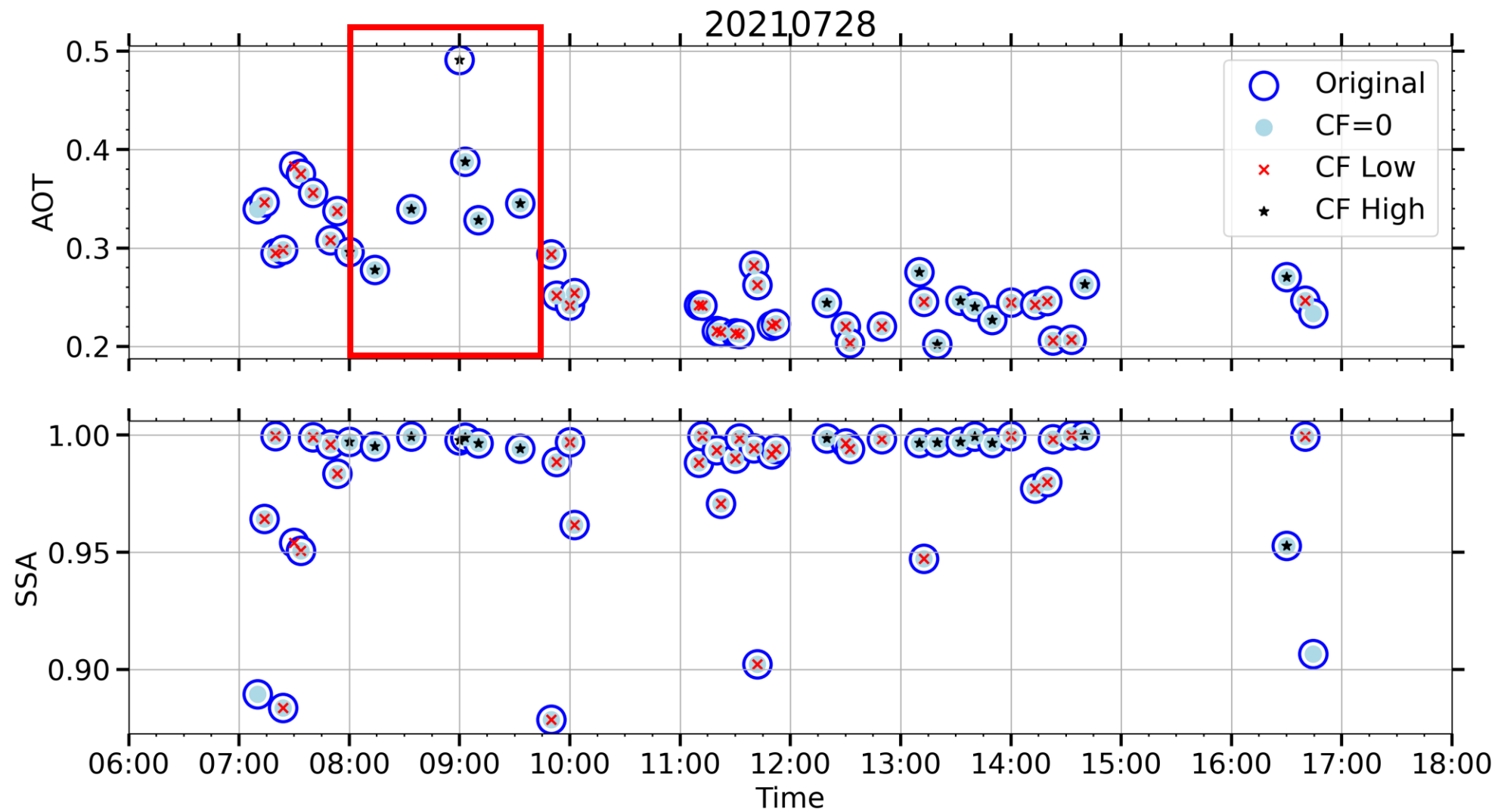


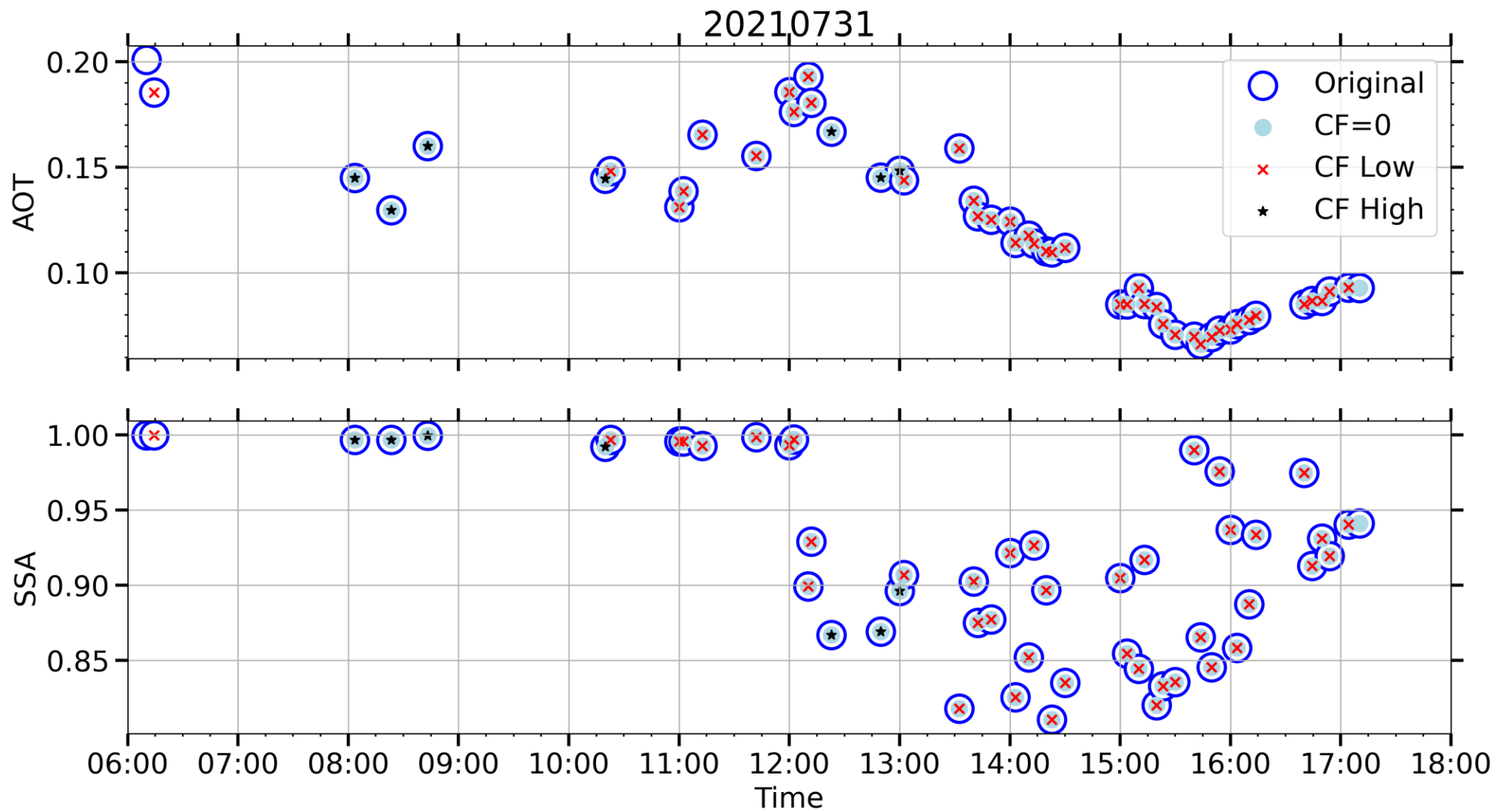
$$CV_2 = \frac{STD(CI_1, CI_2, CI_3)}{AV(CI_1, CI_2, CI_3)}$$

- SKYVIEWカメラ
- Cloud Flag from sky radiometer

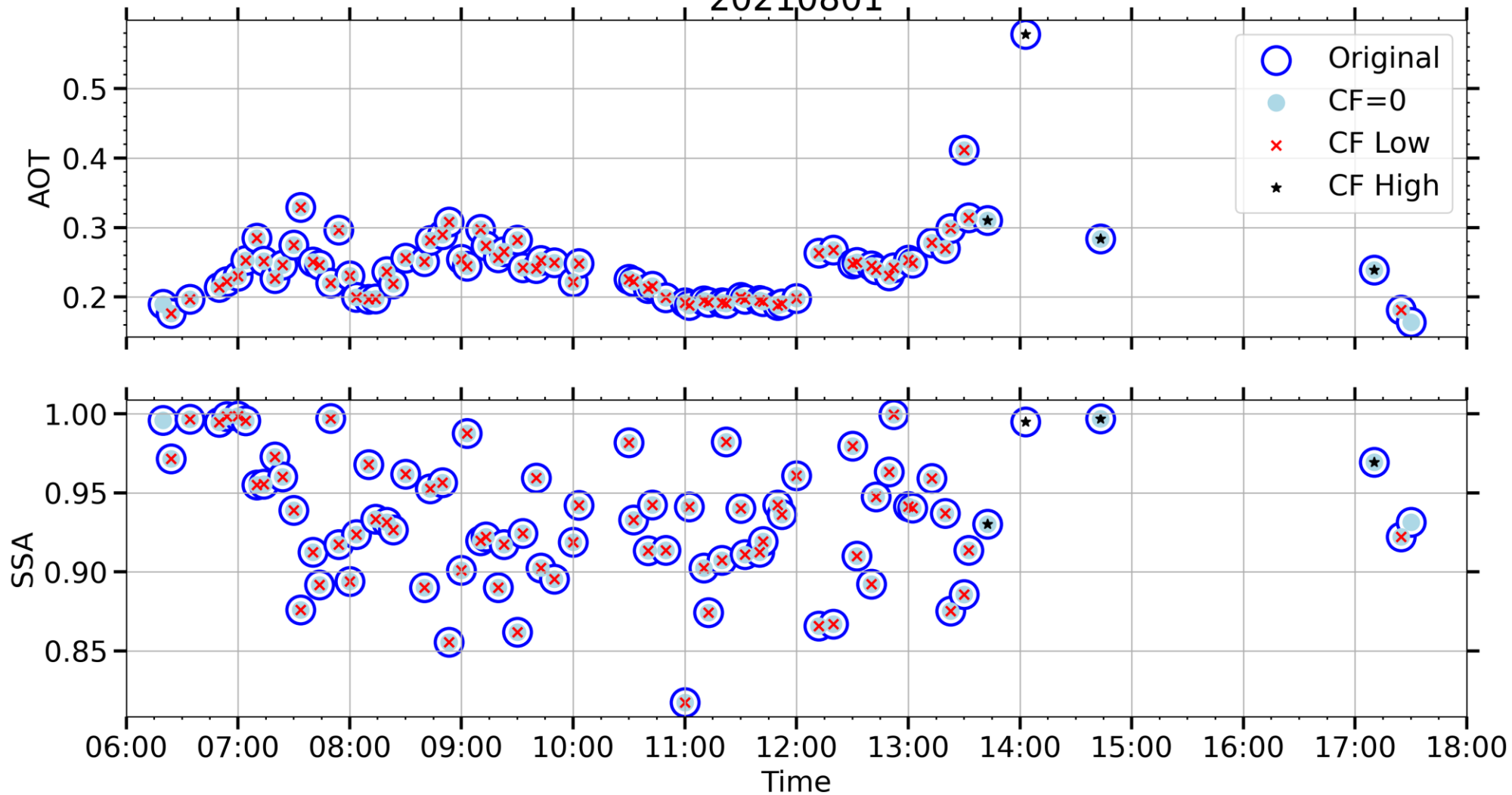
20210729



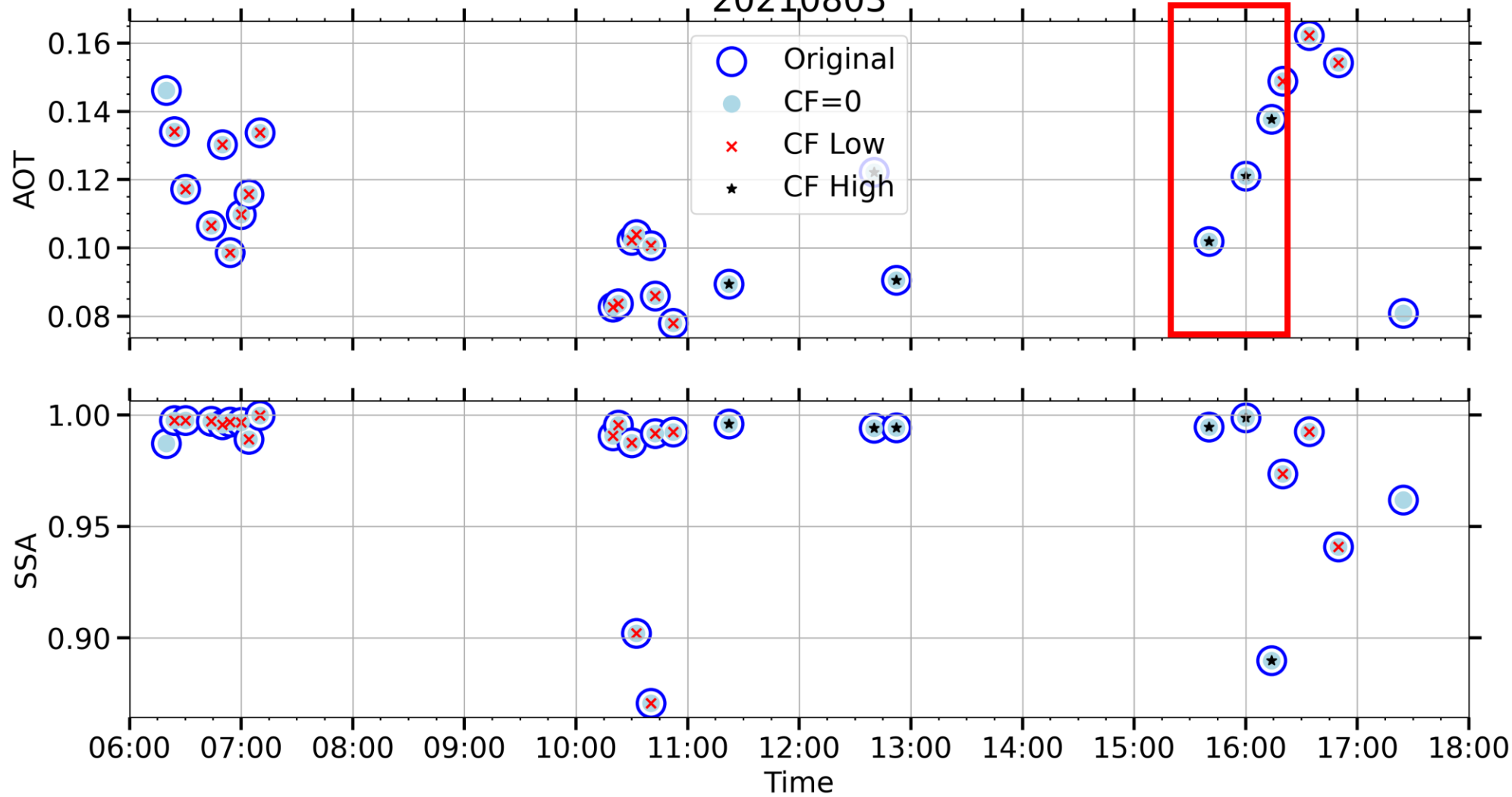




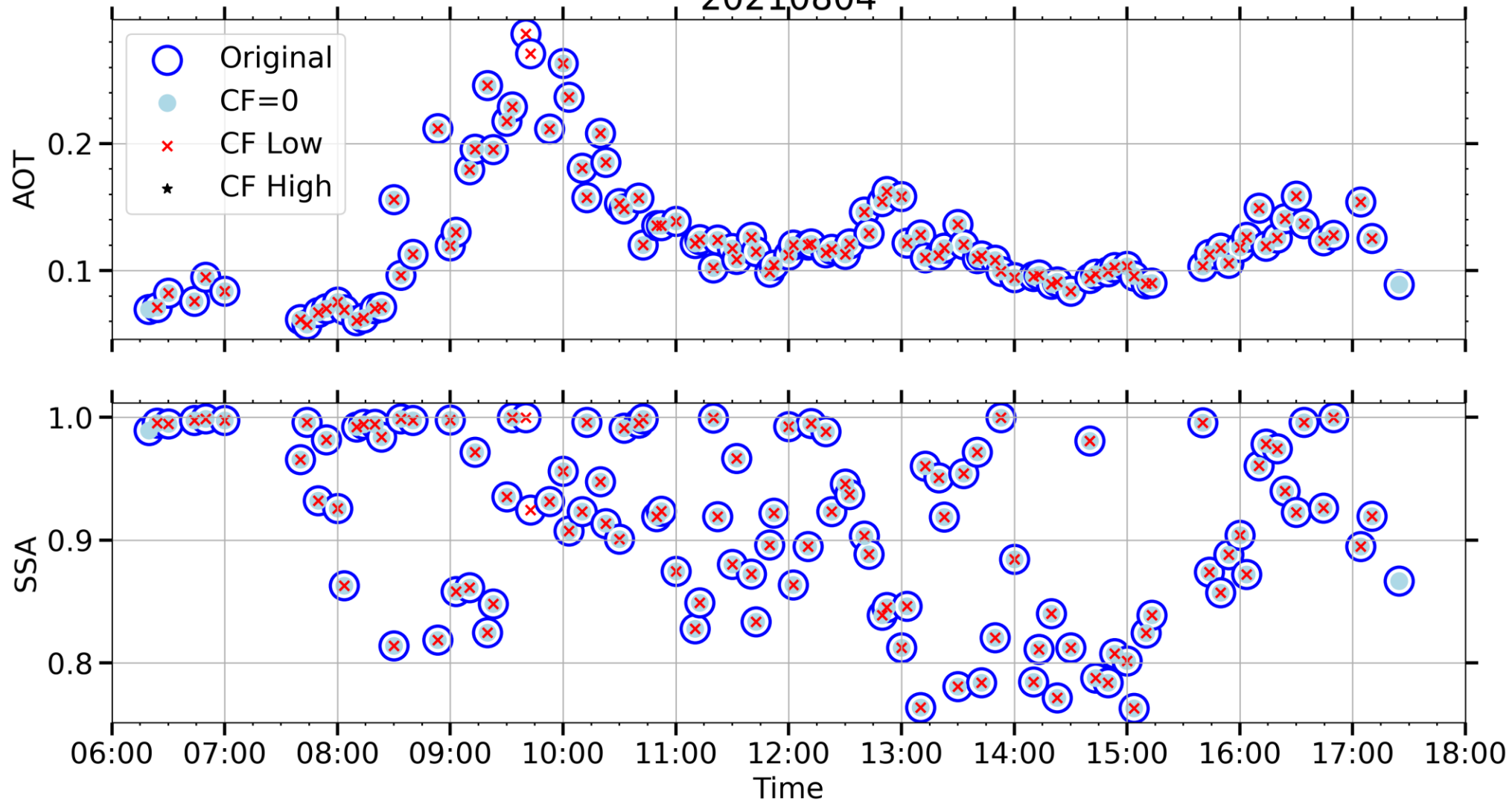
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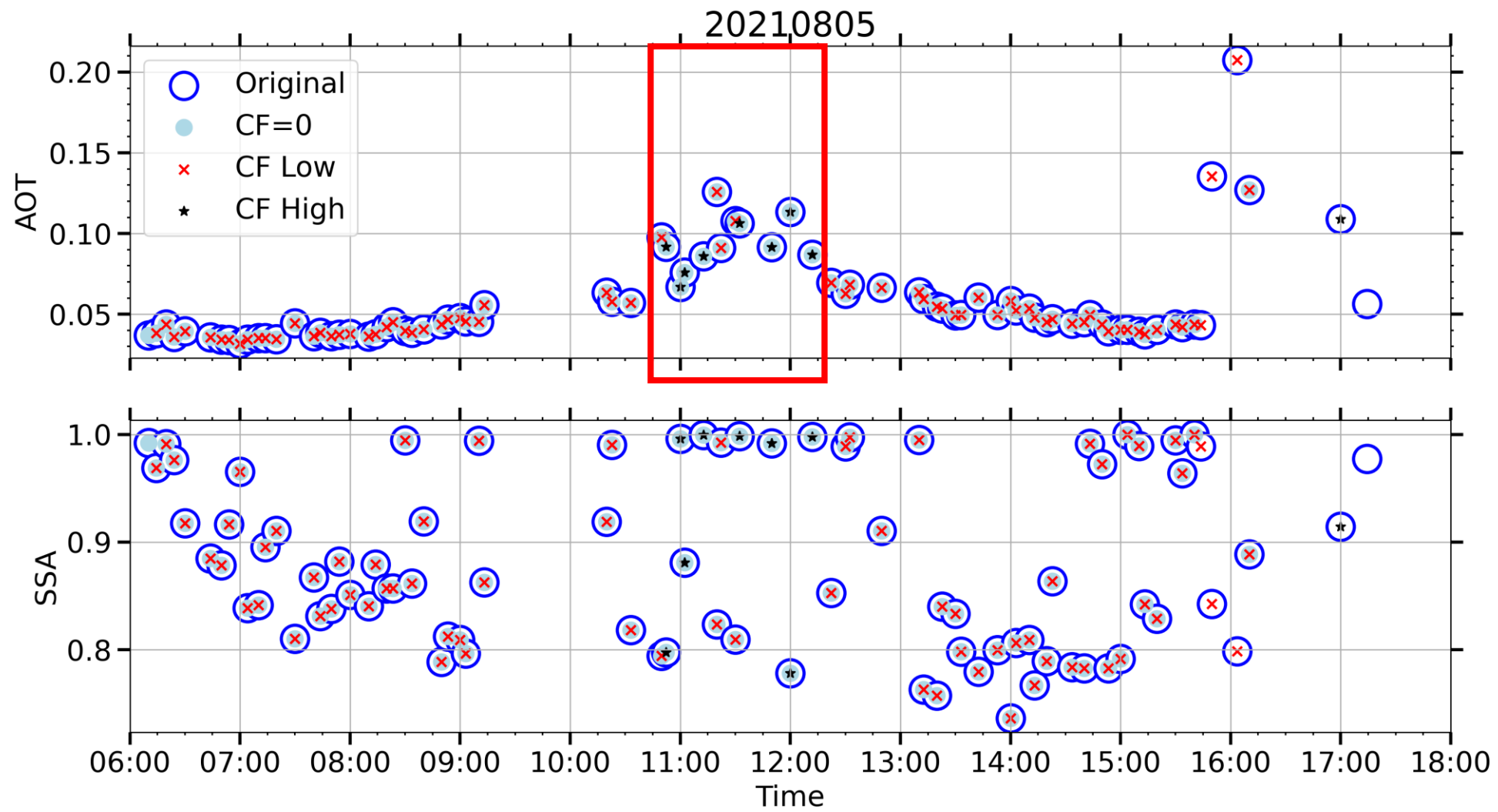


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