

1. INTRODUCTION

This document is aimed at an initial vibratory characterization using the first day of Space Acceleration Measurement System (SAMS) data. These data were measured using a triaxial sensor head (es18) mounted on the Materials Science Research Rack (MSRR) seat track. This is the LAB103 rack baseline location for assessment of joint MSRR/Keyence Research Microscope Testbed (KERMIT) operations.

2. QUALIFY

Figure 2 on page 2 is intended to set background description for the annotated data plots on a later, subsequent page. The caption has hyperlinks to more information. Figure 3 on page 3 is intended to give hyperlinks to the original, source plot PDFs (better captured in hyperlinks in the caption). Figure 4 on page 4 shows annotated spectral plots with horizontal dashed lines at some of the more impactful spectral peaks measured by SAMS on the MSRR. Note especially the very strong, narrowband peak at 144.8 Hz. This component dominates the vibratory acceleration spectrum at this location.

3. QUANTIFY

Figure 1 on page 1 shows interval root-mean-square (RMS) acceleration values for two distinct frequency bands: (1) the black trace for the range from 0.01 to 204.2 Hz, the full pass-band of the SAMS sensor head, and (2) the green trace for the range from 0.01 to 100 Hz, an arbitrary mid-way band chosen for partially compartmentalizing the vibratory regime. This figure also shows the median RMS value for the 144.8 Hz spectral peak. The RMS values used to calculate the median here was actually frequency range from 144.0 to 145.6 Hz (using Parseval's Theorem). Note that the 144.8 Hz peak accounts for most of the vibrational energy in the sensor's pass-band.

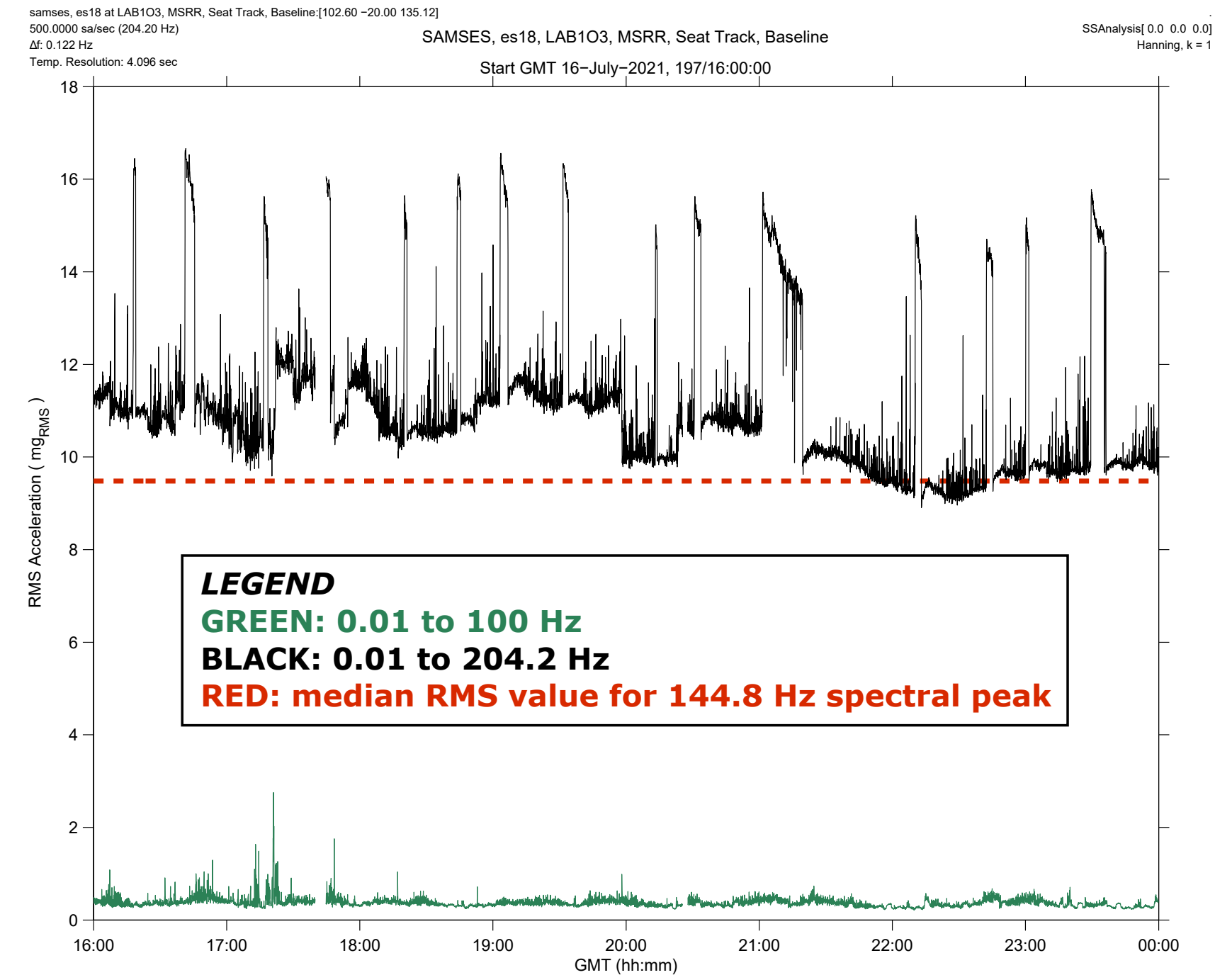


Fig. 1: Interval Root-Mean-Square (RMS) Values.

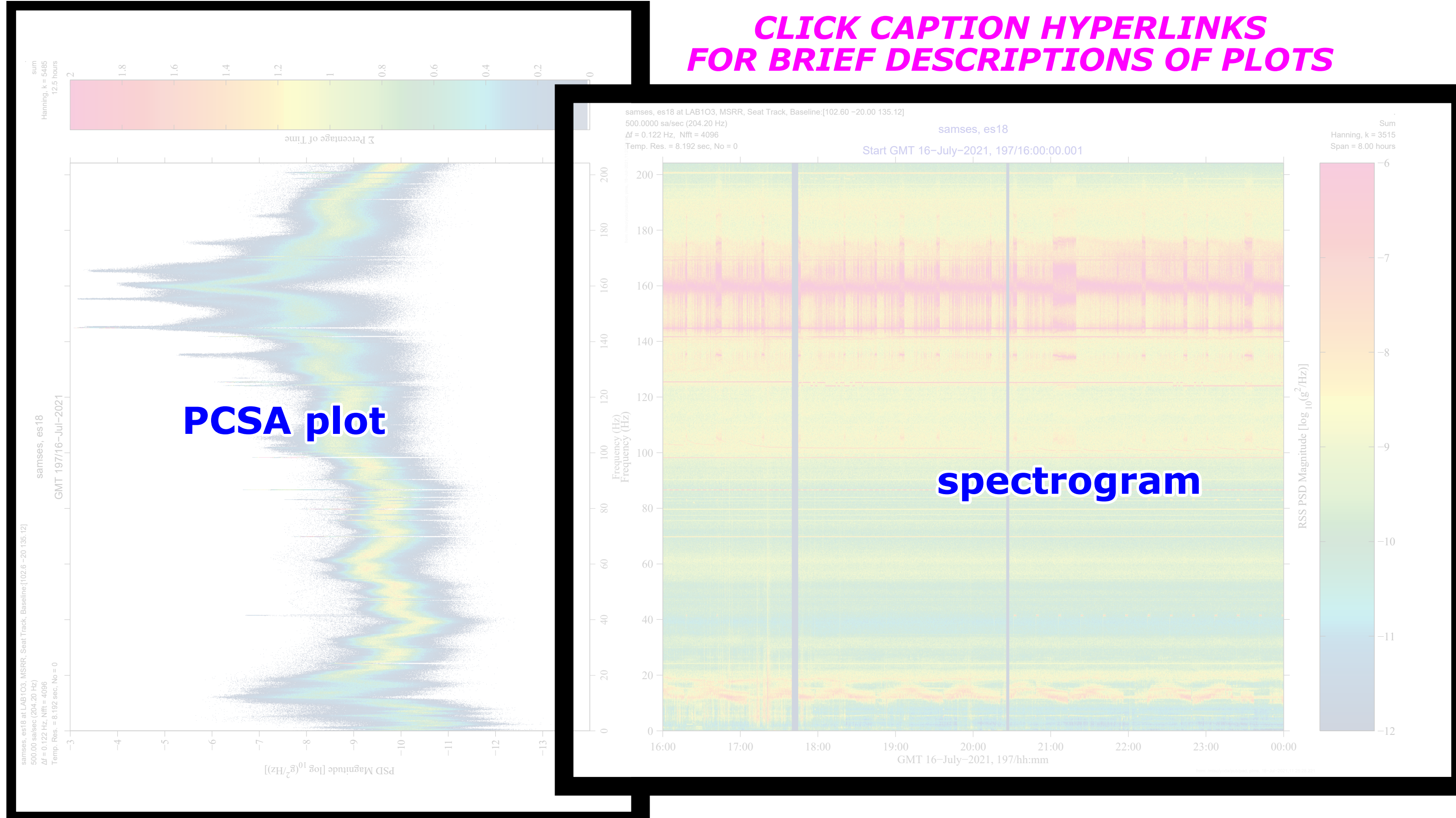
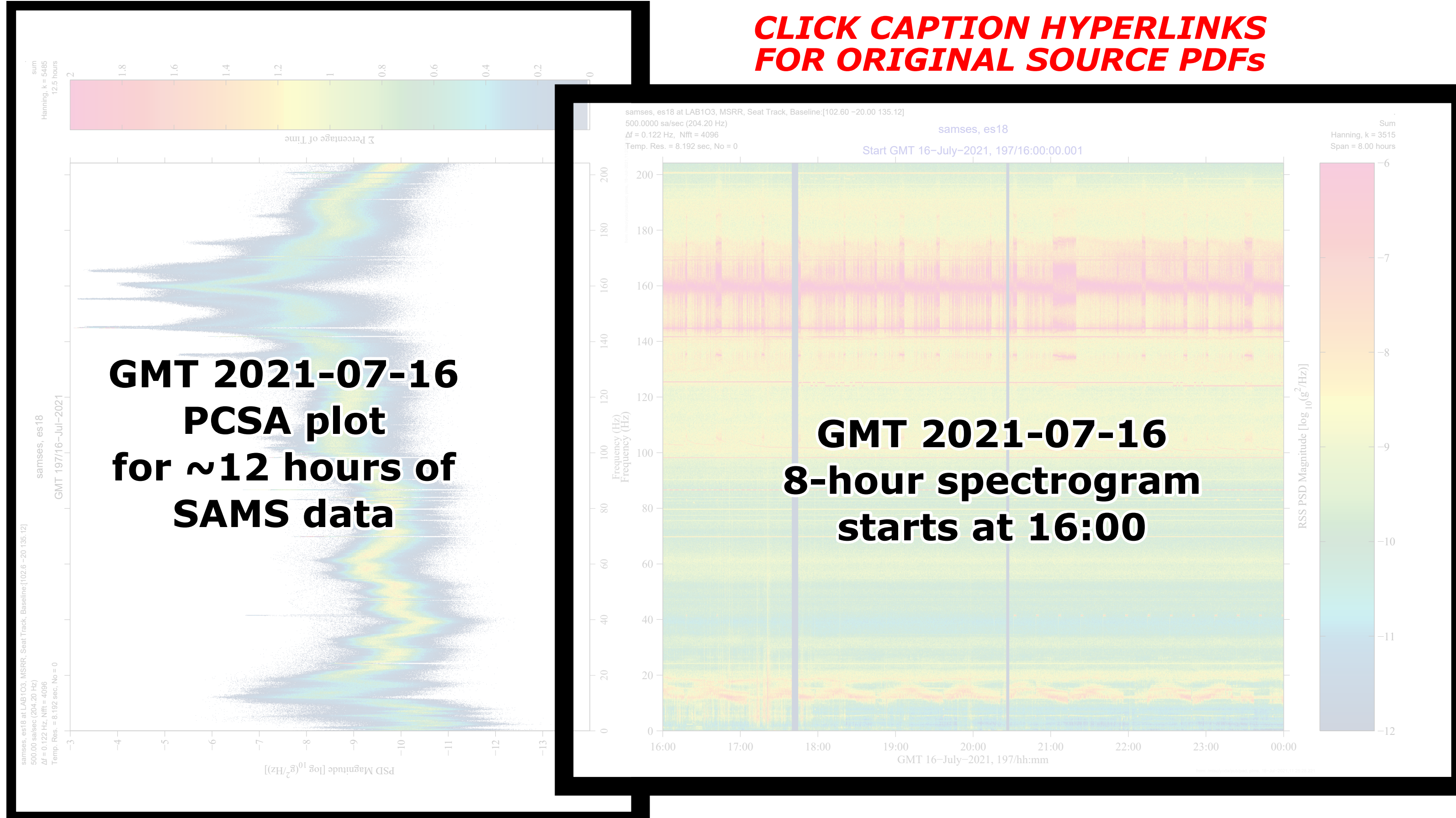


Fig. 2: Layout of Two Overlay Plots from GMT 2021-07-16: (1) see [brief PCSA description at this link](#), (2) see [brief spectrogram description at this link](#).



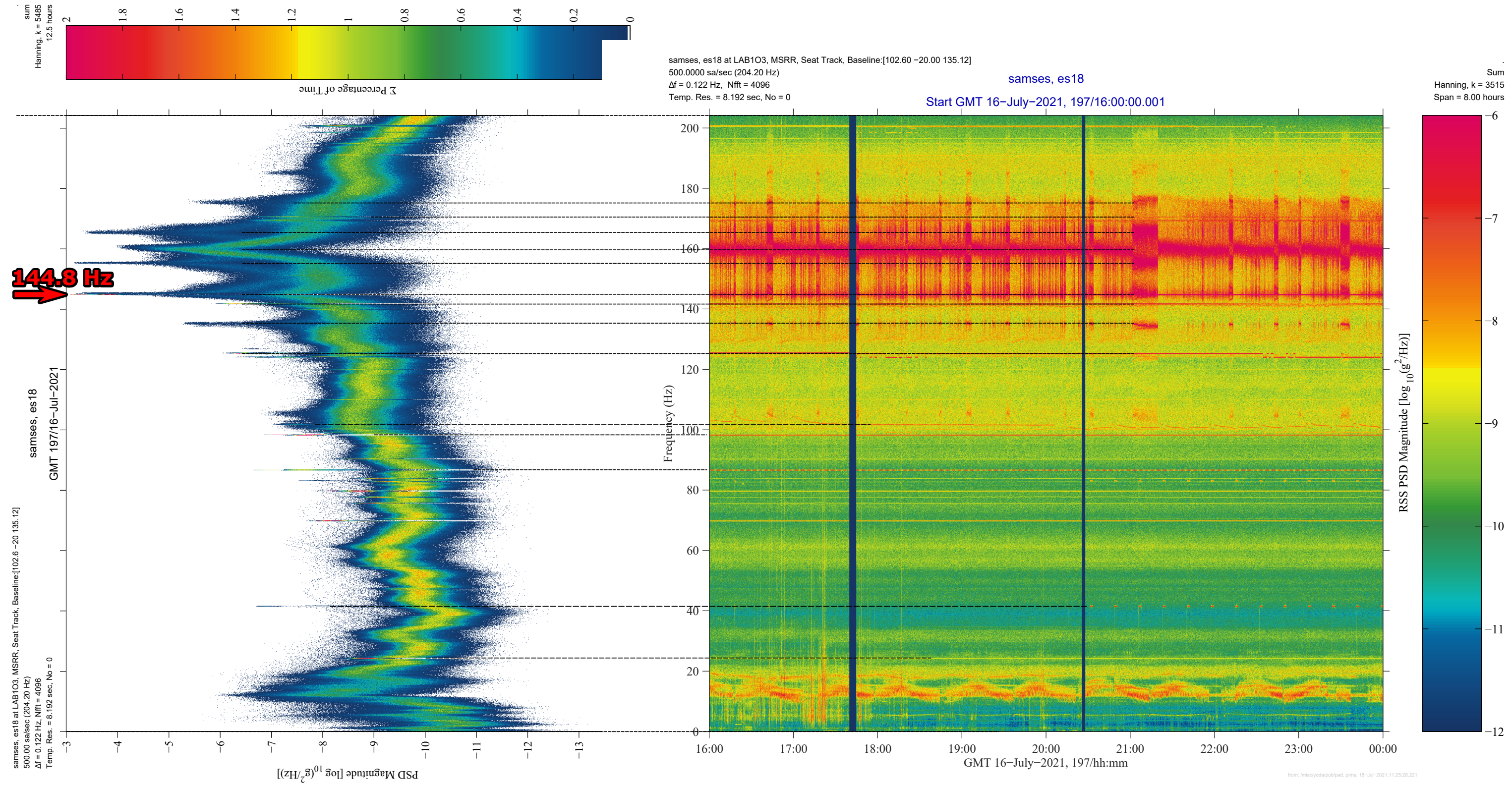


Fig. 4: Annotated Overlay Plots from GMT 2021-07-16.