Summary of Cycle 23 Program- COS Pure Parallel Observations of Geocoronal Ly$\alpha$

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ABSTRACT

In this report we summarize the Cycle 23 program that obtained geocoronal Ly$\alpha$ observations with the FUV detector of the Cosmic Origin Spectrograph (COS).

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1. Introduction

This program is designed to acquire geocoronal Ly$\alpha$ (airglow) observations for some of the most used COS FUV observing modes as a pure parallel program with the Space Telescope Imaging Spectrograph (STIS). The purpose of this program is to provide COS users with airglow data for use in customized calibrations and modeling of airglow features. All observations were successful (see Table 1 summary).
Table 1. Cycle 23 Airglow Observations.

<table>
<thead>
<tr>
<th>Program ID</th>
<th>Rootname</th>
<th>Cenwave</th>
</tr>
</thead>
<tbody>
<tr>
<td>14429</td>
<td>LD1CE1060</td>
<td>1327</td>
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<tr>
<td>14429</td>
<td>LD1CE2060</td>
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<td>1291</td>
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<tr>
<td>14429</td>
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<td>1291</td>
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Note. — All exposures were taken with an exposure time of 2900s and at FP-POS=3.

2. Summary

The Cycle 23 airglow observations were taken as pure parallel observations with the STIS program 14429. Program 14429 contains two airglow observations with the G130M/1327 setting (see Figure 1 for an example) and two with the G130M/1291 setting (Figure 2).

The data were successfully acquired, have been archived, and are available for download. For convenience to users, we have listed links to the data on the COS Airglow website:

http://www.stsci.edu/hst/cos/calibration/airglow.html

Change History for COS ISR 2017-15

Version 1: August 18, 2017 - Original Document
Version 2: December 5, 2017 - Moved results from the Cycle 24 program to ISR 2017-23
Figure 1. G130M/1327 example, LD1CE1060, with segments highlighted. Ly$\alpha$ airglow is seen at 1215.6702 Å, Nitrogen at $\approx$1200 Å, and Oxygen airglow is seen at 1302.1685 Å (O I), 1304.8576 Å (O I*) and 1306.0286 Å (O I**).
Figure 2. G130M/1291 example, LD1CE3060, with segments highlighted. \( \text{Ly} \alpha \) airglow is seen at 1215.6702 Å and Oxygen airglow at 1302.1685 Å (O I), 1304.8576 Å (O I*), and 1306.0286 Å (O I**).