



A BRIEF UPDATE ON A LEADING GNSS-RO 3U CUBESAT CONSTELLATION

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Space Weather Workshop 2018

Westminster, CO

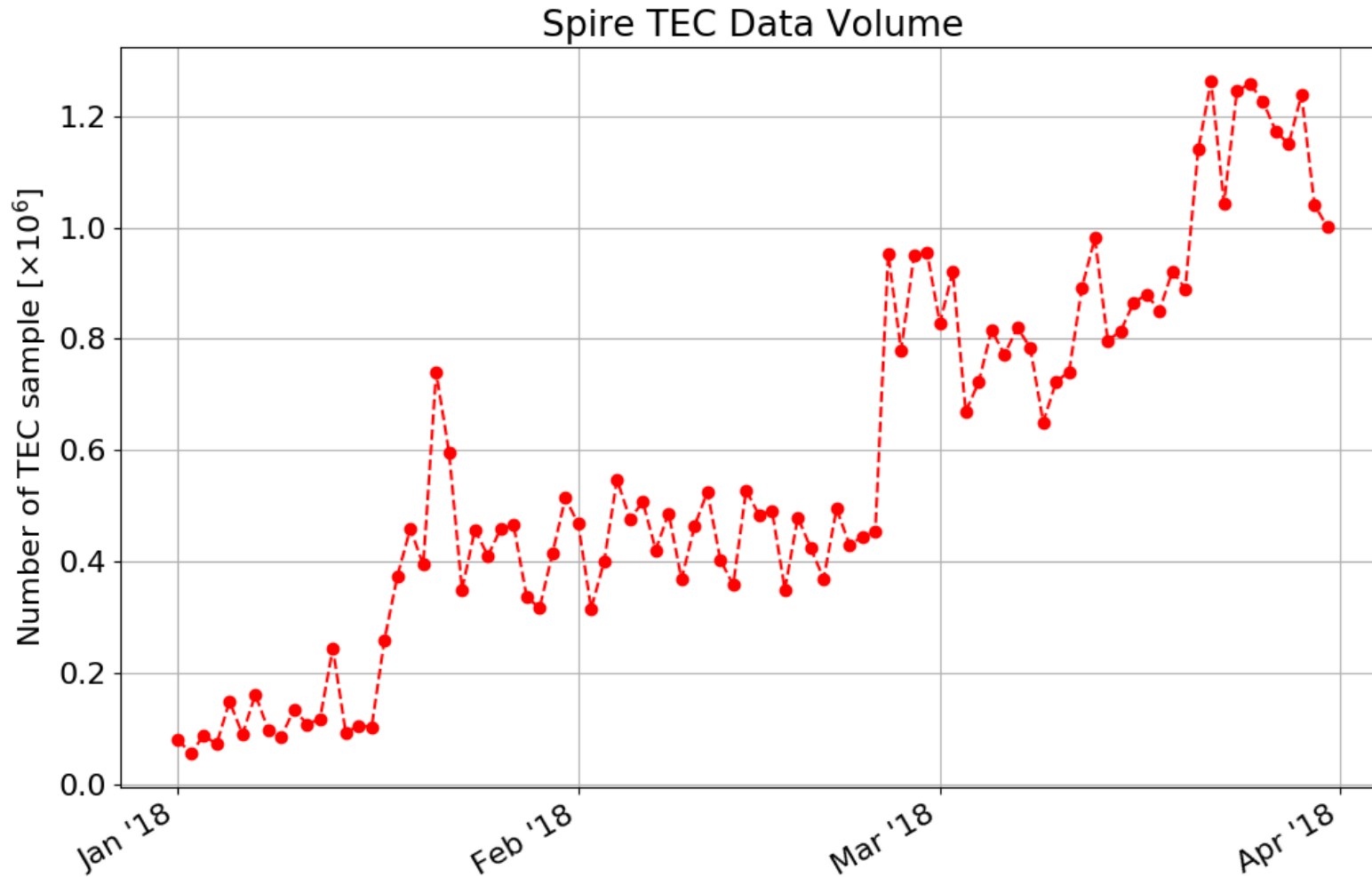
SPIRE GLOBAL, INC.

- Leading player in nanosatellite sector
- Building the most advanced, constantly refreshed 3U satellite constellation
- Vertically integrated: design, build, launch, operate, and process data from 3U CubeSats
- Offices in Glasgow, Singapore, San Francisco, Boulder, and [Luxembourg](#)
- Providing rapidly refreshed data:
 - AIS (ship tracking)
 - ADS-B (commercial aviation tracking)
 - **GNSS Radio Occultation (RO)**
 - Participated in NOAA Commercial Weather Data Pilot (CWDP) in Spring 2017
 - Demonstrated feasibility of supplying high quality, commercial data to NOAA within a 3U CubeSat



Satellite Production (up to 12 at once)

TEC DATA VOLUME



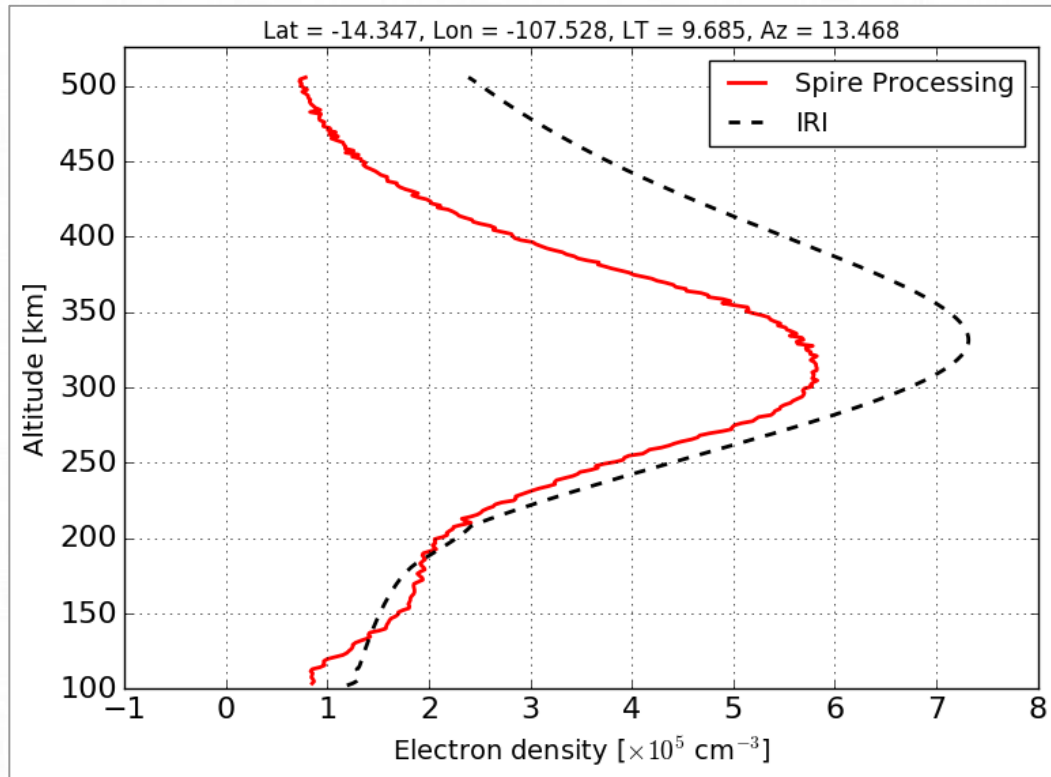
Production levels of TEC have increased since the beginning of 2018:

- New satellite checkout
- On-orbit software upgrades

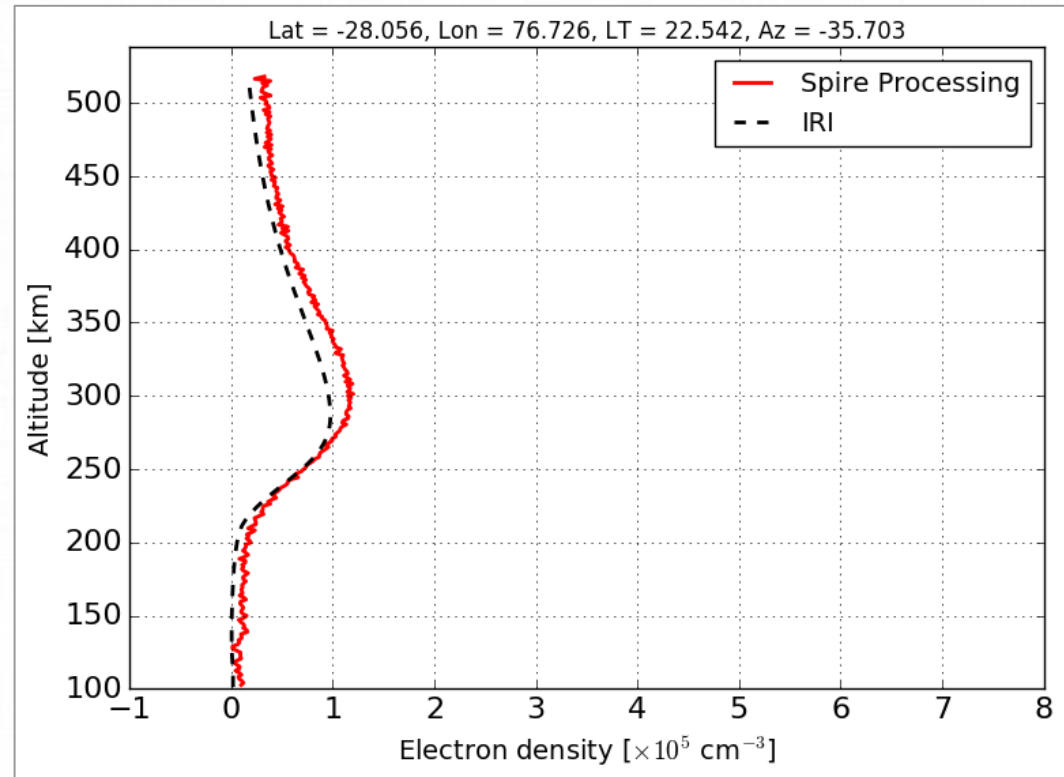
Expect further increases in 2018 due to future launches and optimizing duty cycle

ELECTRON DENSITY PROFILES

Daytime



Nighttime



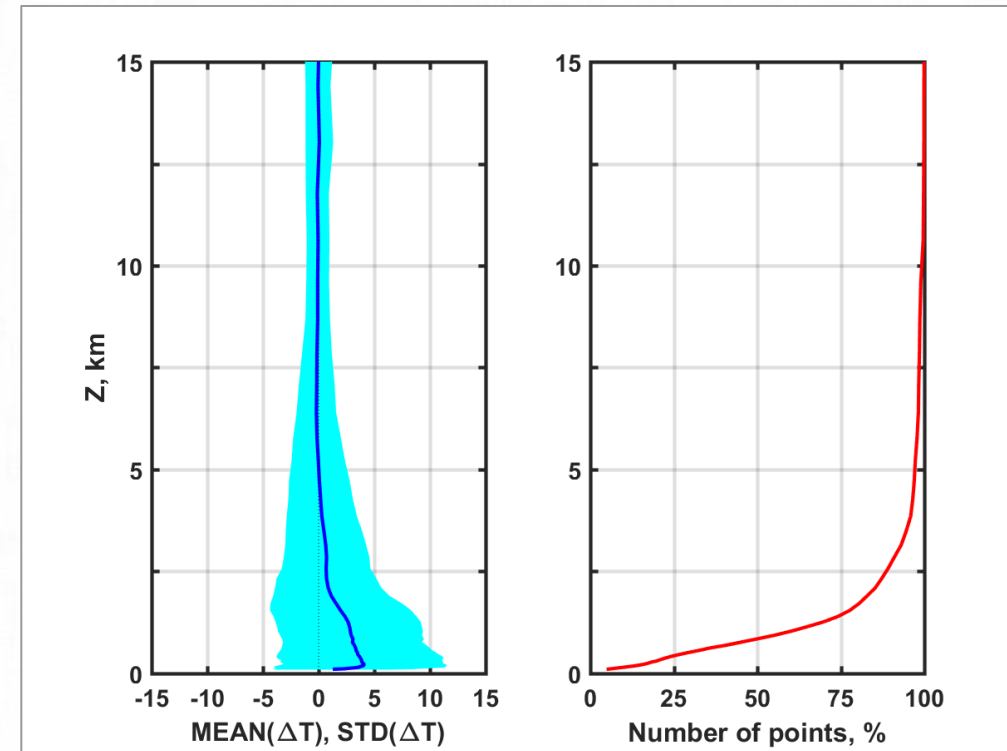
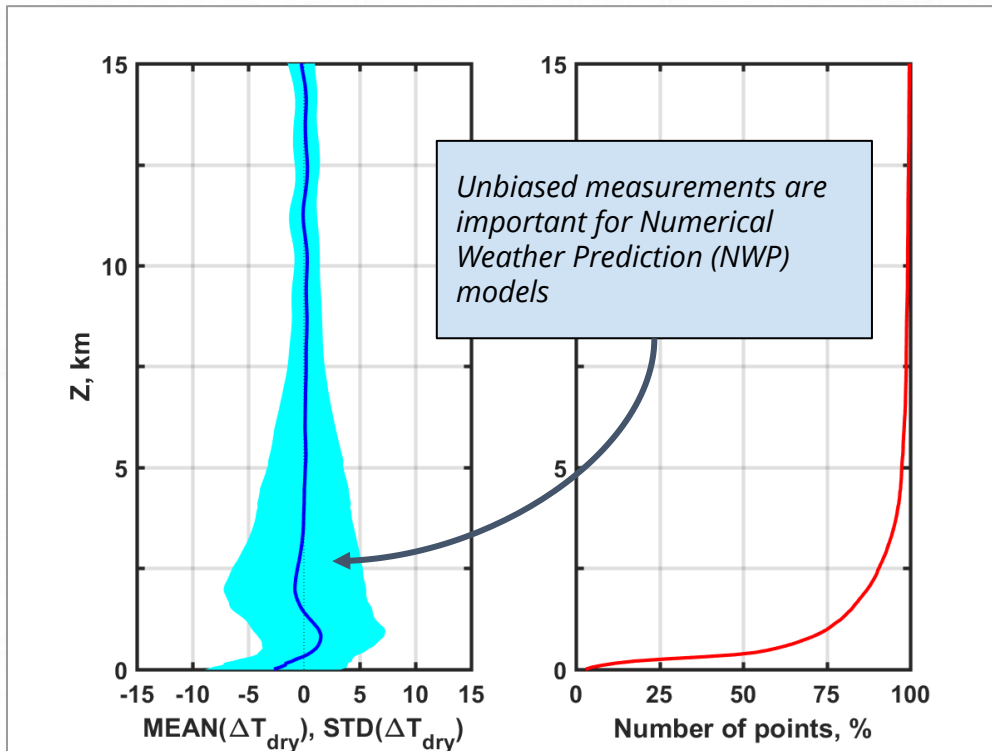
Developed prototype electron density inversion software for low elevation TEC measurements

NEUTRAL ATMOSPHERE OCCULTATIONS

Spire

Spire Radio Occultation (RO) data
are comparable to COSMIC-1

COSMIC-1

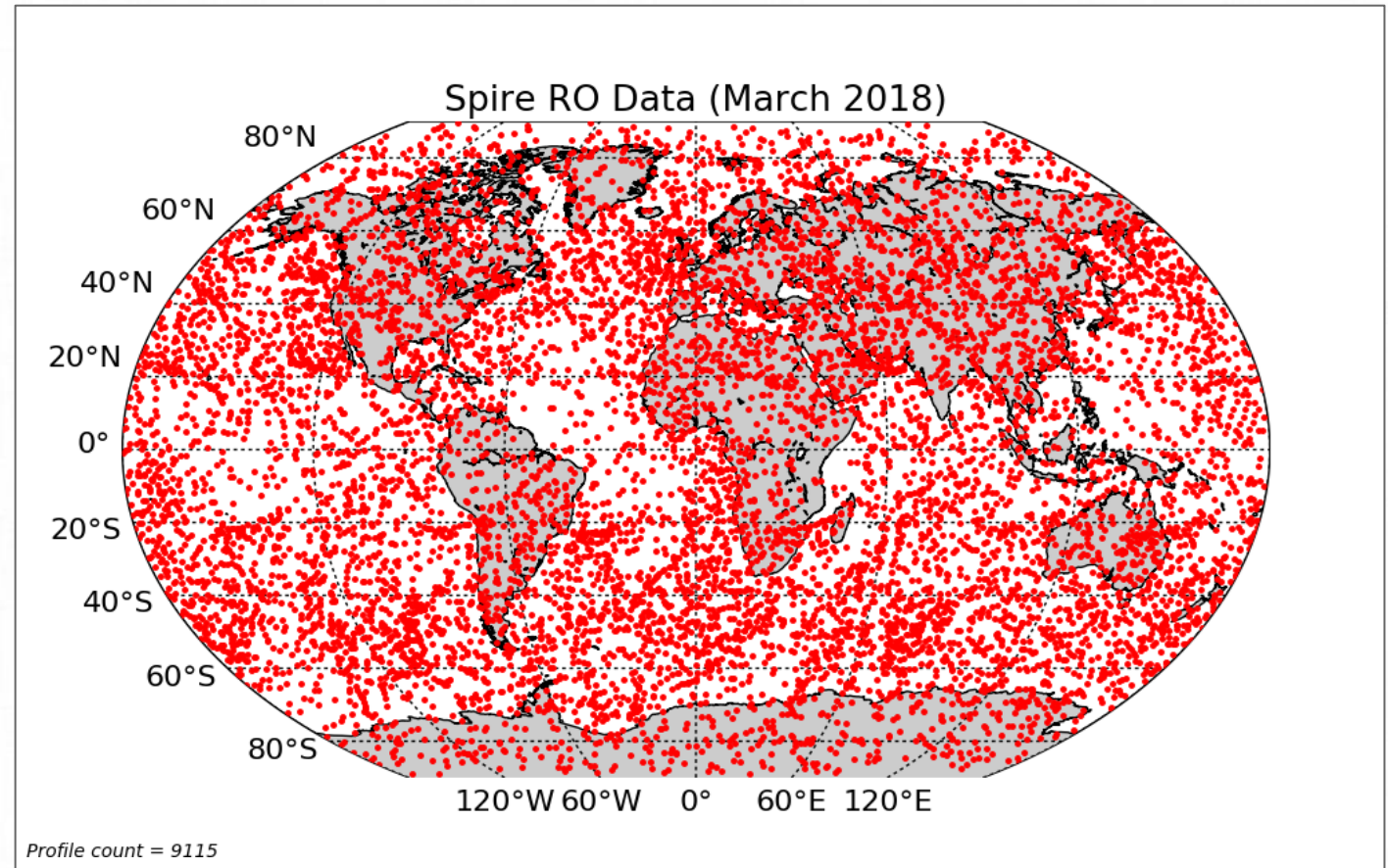


March 2018 $N = 6,748$ Profiles

Nov/Dec 2017 $N = 4,243$ Profiles

OUTLOOK

- Validation of electron density profiles / improved algorithm development
- Increasing data volume
- Participation in CWDP Round 2 (RO & ionospheric data)
- Integration of TEC data into an ionospheric assimilation model



For any questions, please contact:

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