SPACEALPHA

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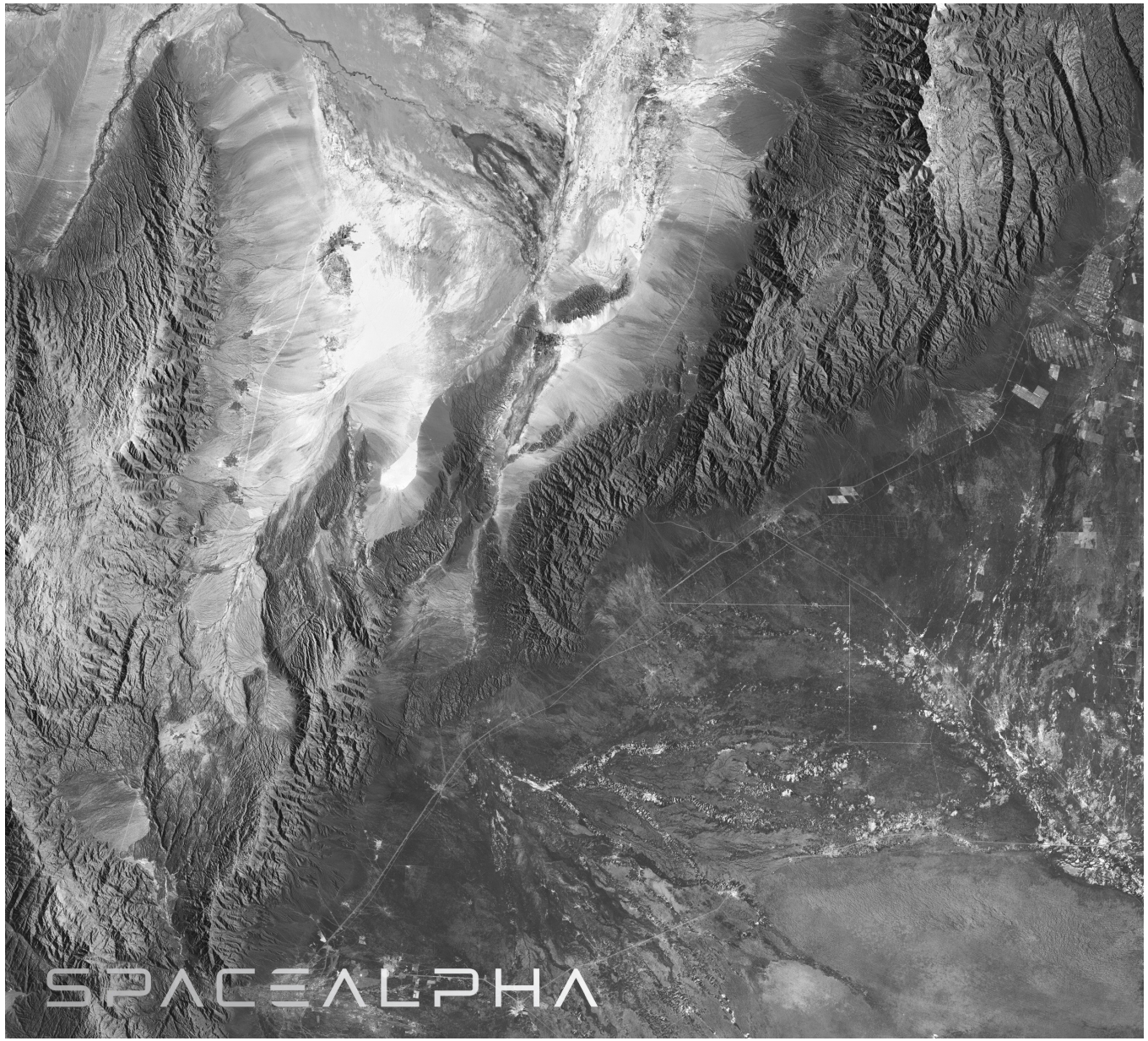
SpaceAlpha

THE WORLD'S MOST ADVANCED

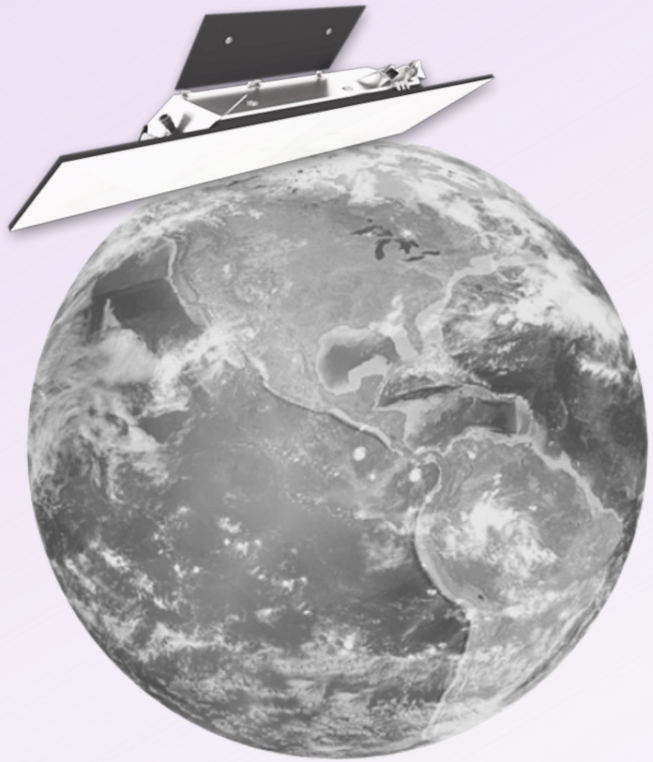
EARTH OBSERVATION SYSTEM



THE STORY

SAR-XL technology acquired from UrtheCast in 2020: SpaceAlpha is an early-stage company with advanced-stage technology.

- CDN$60 million went into developing IP from CSA and DND
- Emerged from stealth in Feb. 2021 with 6 years of advanced technology development and existing customer contracts
- Tech is developed, tested, and meets launch specifications



THE SOLUTION

Synthetic Aperture Radar

SAR BASICS

- 'sees through' cloud, vegetation, soil, and darkness
- microwave pulse bounces off Earth
- reflected energy creates image
- allows for better accuracy than optical data

RICH DATA: PRECISION & ACCURACY

- information-rich data required by governments and commercial enterprises
- XL satellites can detect elevation change down to the millimeter, tracking direction and speed of objects on the ground

SAR-XL's Key Attributes

Dual-frequency SAR Antenna
World's first X & L bands hardware solution. Quad pole.

Multiple Modular Apertures
Each SAR-XL panel is a fully stand-alone SAR instrument. Multiple apertures improves data quality.

Fully Digital SAR Electronics
Re-configurable on orbit with new capabilities

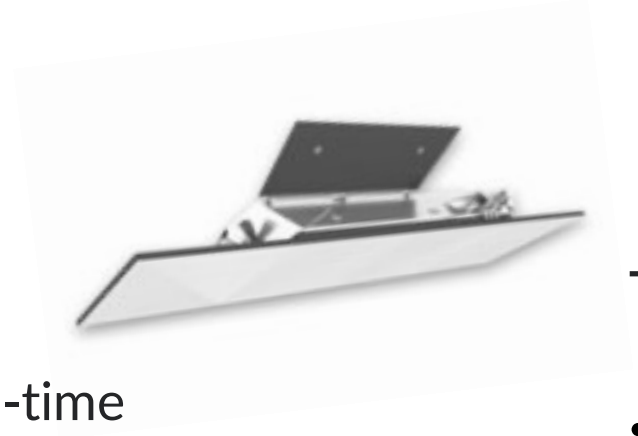
Phased Array Antenna
Multiple SAR beams and electronic steering of the SAR beams allows instantly re-pointing of SAR beam.

High Resolution
Resolution of 0.40 m in X-band. Down to 2 m class resolution in L-band .

Wide Swath Surveillance Modes
>250 km wide ScanSAR modes in L-band while imaging in X-band.

On-Board Processing
Allows for inter-satellite downlinks for real-time data delivery

THE SPACECRAFT



CAPABILITY HIGHLIGHTS

Onboard processing: autonomous real-time tipping-and-cueing

L-band: for very wide swath imaging

X-band: for high resolution imaging of detected objects (0.4 resolution)

AI tasking: instantly steer the X-band beam onto the detected object

Simultaneous wide-swath, high-res modes for broad area surveillance and high-res imaging of detected targets

TECHNICAL OVERVIEW

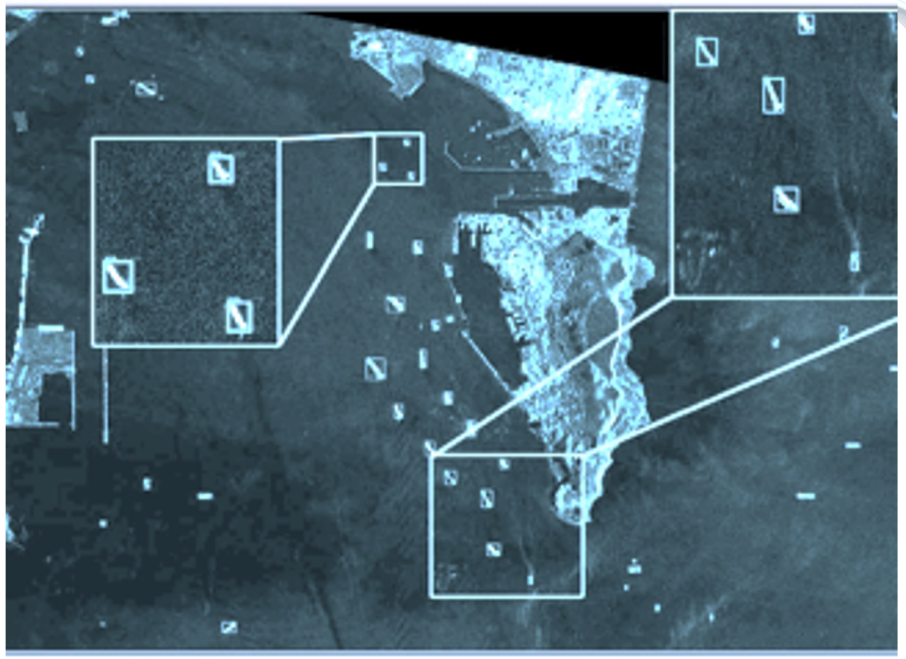
- Fully modular design
- Dimensions: 2x6 meters
- Simultaneous X and L bands
- Multi-aperture
- Multiple digital beam forming
- Quad polarization

USE CASE: MARITIME SURVEILLANCE

>> L-band and X-bands operate simultaneously

>> Powerful onboard SAR processing in tipping-and-cueing (“self-cueing") mode

- **L-band**: for very wide swath ScanSAR imaging (e.g., 300 km swath width)
- **X-band**: for high-res imaging of detected objects (0.4m resolution)
- **Autonomous real-time onboard tasking:** instantly steers X-band beam onto detected object



Every ship detected, regardless of weather, time of day, or location.

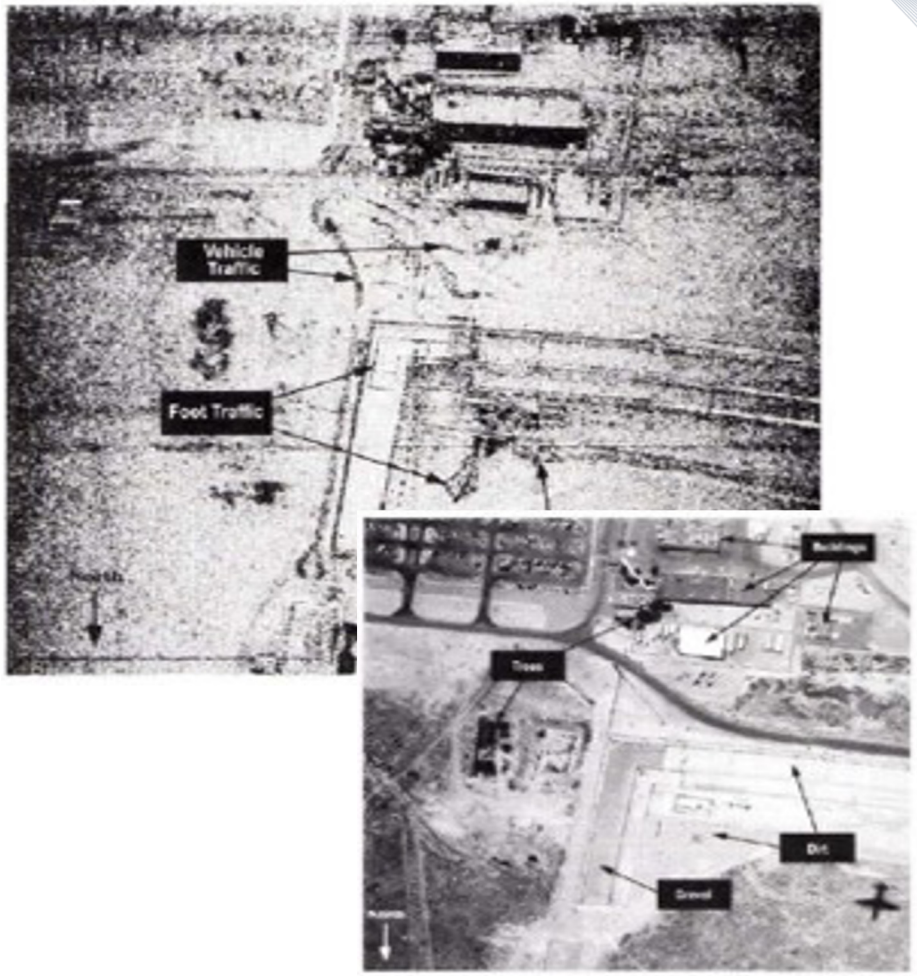
USE CASE: LAND SURVEILLANCE & INTELLIGENCE GATHERING

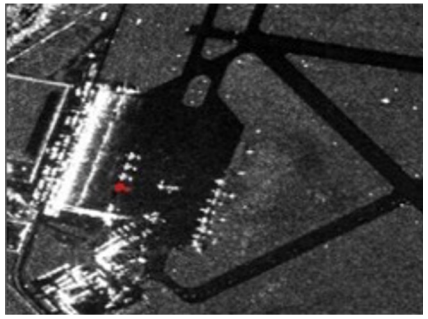
High-resolution X-band Data

- <0.5 m resolution
- High radiometric quality, day and night, through clouds

High-resolution L-band data (2m class)

- Objects under trees and under camouflage





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THE MOST CRITICAL GLOBAL ISSUES REQUIRE SATELLITE DATA

SPACEALPHA

FOOD SCARCITY

PRECISION AGRICULTURE

CLIMATE REPORTING

ENVIRONMENTAL MONITORING

DEFENCE & SECURITY

ILLEGAL FISHING

INFRASTRUCTURE

CIVIC PLANNING

FOREST FIRES

NATURAL DISASTERS


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