

# CONTEC

**Vertical –Chain for receiving, processing and analytic service  
of satellite image data in real-time**

***Presenter: Dr. Sunghee LEE***



CONTEC CEO

# Sunghee Lee

## / Major Activities

'20.12 World of Forbes 2020 Frontrunner of South Korea  
MSIT's Micro-satellite Development Technical Advisory Committee  
MOLIT's National Land Planning, Satellite Image Application Committee  
KCG's Micro-satellite Development Technical Advisory Committee  
Space Radio Environment's Micro-satellite Planning Advisory Committee  
Speaker at International Space Conferences(SpaceOps, Space Tech Conv. ISC, etc.)

## / Education

PhD in engineering  
Space electronics and information engineering

## / Career

CEO of CONTEC Co., Ltd('15.01 ~)

- Raised \$65million funding and IPO plan for 2023
- Ground station service with global ground network (12 sites)
- Partnership with major international space firms (SpaceX, AWS, KSAT, etc.)
- First domestic EO/SAR satellite launch plan for 2023

Carleton University('10.08 ~ 11.07)

KARI: Korea Aerospace Research Institute('02.03 ~ '18. 01)

## / Awards

'21 'Industrial Service Medal' at Korean Venture Startup Awards  
'21 'Prime Minister's Award' for Job Creation Contribution  
'17 Contributed to selection as excellent national R&D  
'16 STAR-Exploration MSIT Minister's Award  
'14 K-Startup Excellent Award  
'13 Award for KSLV-I Launch Mission(MEST Minister's Award)

## / Lectures

22.06 KDB Nextrise Speaker  
22.04 Trevari Reading Club "We Space" President  
21.12 3M Science Lecture  
21.11 NHI Innovative Leadership Campus Lecture  
'21.08 Mirae Asset Lecture  
'21.08 Samsung Securities CEO/CRO Untact Summit Season 2 Opening Lecture  
'21.08 SK Group CEO & ICT Committee Lecture  
'21.07 FKCCI Innovation Committee Lecture  
'21.07 Donga Science's Introduction To Space Scientists  
'21.06 Daejeon KSA's Lectures of CEOs  
'21.05 Daily TV's Unicorn Finder  
'21.04 YTN's space industry planning video  
'21.04 Samsung Securities Lunch & Learn Online Lecture  
'21.04 Choi Ilgu's Hurricane Radio  
'21.03 TVN Future Lecture



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PARTNERS

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SERVICE  
SATELLITE IMAGE  
PRE-PROCESSING  
SATELLITE IMAGE  
APPLICATION

## Chapter3

### **FUTURE PLAN**

VISION





Chapter 1

# ABOUT CONTEC

## 01 | OVERVIEW



**CEO Ph.D Sunghee Lee**

2002 ~ 2018 | KARI Researcher

### ABOUT US

<b>Found</b>	Jan 5 <sup>th</sup> (Researcher Startup at KARI)
<b>Revenue</b>	13.5 MUSD ( in 2022)
<b>Staff</b>	102 (+Luxembourg)
<b>Business</b>	Satellite Data Downlink / Processing / Application Platform Ground Station Design / Implementation / Operation Service
<b>Location</b>	[HQ] 169-84, Gwahak-ro, Yuseong-gu, Daejeon, 34133, Korea [Subsidiary] Luxembourg Technoport
<b>Investment</b>	<b>Completed Series A, B, C (65MUSD) / IPO Plan (Q3, 2023)</b>



### History of CONTEC

2022

- ▶ **KSLV-II PVSAT Mission Support**
- ▶ **Established CONTEC Global GS Network (12 Stations)**
- ▶ Launched Satellite Image Application Service

2021

- ▶ **Subsidiary (CONTEC Earth Service) found specialized for Satellite Image Selling and Application Service**
- ▶ Registered as a Company Participating in the U.S. Defense Business (Security Clearance)
- ▶ **Contract Signed for CONTEC Sat Development (2023 Launch)**
- ▶ Won Industrial Service Medal at Korea Venture Awards

2020

- ▶ Started Commercial Ground Station Service
- ▶ Contract Signed for Center Antenna System and Integrated Monitoring and Control System Development for National Satellite Integration Center

2019

- ▶ Established Luxembourg Subsidiary
- ▶ Satellite Image Change Detection Technology Development

2018

- ▶ **Signed Partnership Agreement with Space-X**
- ▶ Contract Signed for KOMPSAT Ground System

2017

- ▶ Contract Signed for KOMPSAT and CAS500 Series Pre-Processing System Development
- ▶ Demonstrated Excellence in National R&D

2016

- ▶ Contract Signed for KOMPSAT Image Quality Evaluation System Development
- ▶ Won MSIT Star-Exploration Project 1<sup>st</sup> Place

2015

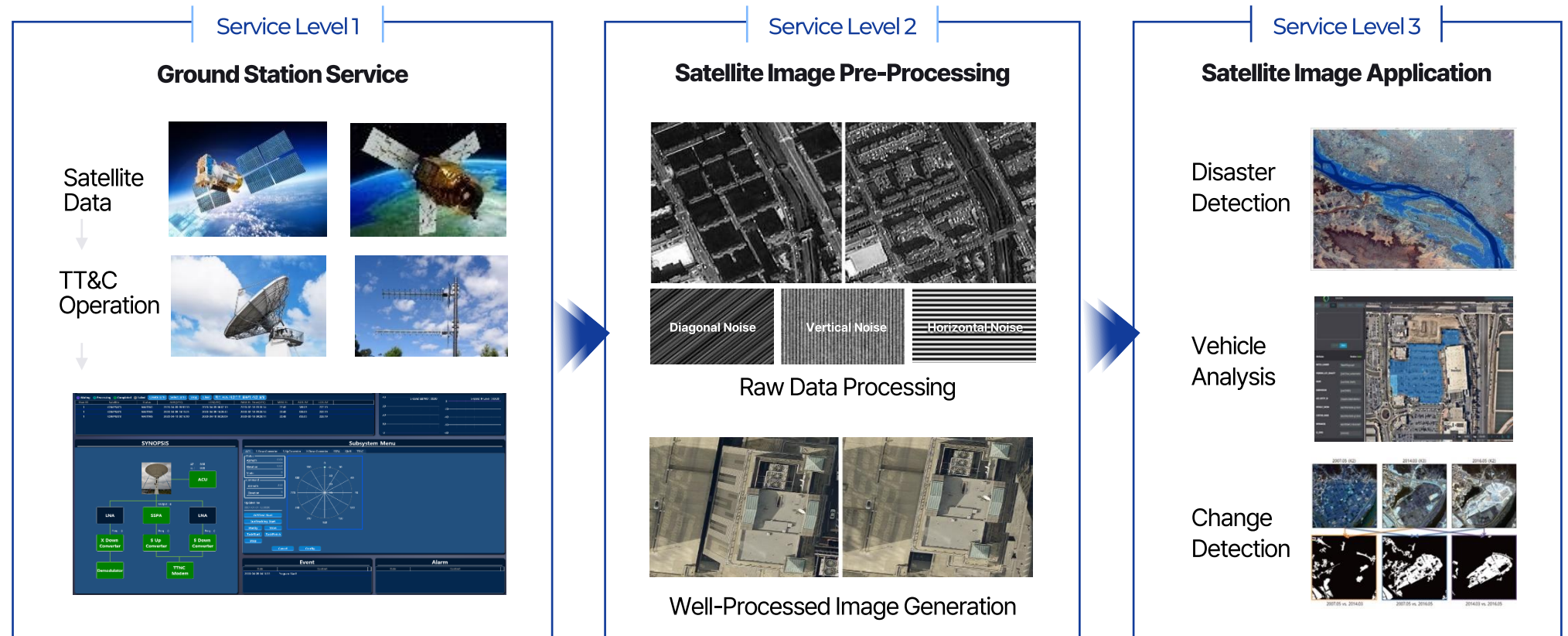
- ▶ **Contract Signed for KSLV-II Remote Data Receiving Equipment MCS Development**
- ▶ Contract Signed for KOMPSAT and COMS Antenna System Operation

**Platform  
Business  
Establishment**

**National  
Space Program  
Participation**



# Provides End-to-End Solution for Satellite Mission



# Only Company in Asia with Satellite Launch & Operation Experience

### ABOUT CONTEC

BUSINESS MODEL

FUTURE PLAN

### Satellite Data Downlink and TT&C Service

Ground Station Design, Implementation, Operation



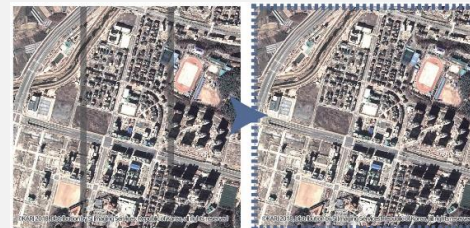
### Ground Station Monitoring and Control System

Ground Station Monitoring and Control for Multi-Satellite Operation



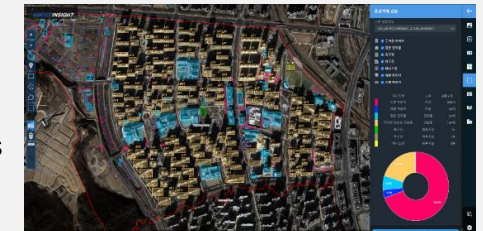
### Satellite Image Pre-Processing

Raw Image Data Processing with Radiometric, Spatial, and Geometric Correction



### Satellite Image Application Platform

AI-based Satellite Image Analysis and Application of Image Processing, Computer Vision, Machine Learning, etc.



# The Market Leader of the Global Space Industry

### Global Customers and Partners

#### Europe

**KSAT**  
KONGSBERG SATELLITE SERVICES

**NORTHBASE**

**ICEYE**

**SAFRAN**  
AEROSPACE · DEFENCE · SECURITY

**TESAT**

**cailabs**  
SHAPING THE LIGHT

**AIRBUS**

**NATIONAL SPACE CENTRE**

**nano avionics**

**AL**  
astrolight

THE GOVERNMENT  
OF THE GRAND DUCHY OF LUXEMBOURG

**LEAFSPACE**

#### Aisa

**KARI** 한국항공우주연구원  
Korea Aerospace Research Institute

**KAIST**

**국 방 과 학 연 구 소**  
Agency for Defense Development

**KASI** 한국천문연구원  
Korea Astronomy & Space Science Institute

**kti**

**k water**  
한국수자원공사  
Korea Water Resources Corporation

**국립전파연구원**

**EshailSat** سهيل سات  
Satellite Company

**세종특별자치시**

**부산광역시**  
BUSAN METROPOLITAN CITY

**Jeju** 제주특별자치도  
Jeju Special Self-Governing Province

**ST Engineering**

**SPECTRAL**

**연세대학교**  
YONSEI UNIVERSITY

**서울대학교**  
SEOUL UNIVERSITY

#### America

**RBC**  
SIGNALS

**AST**  
SpaceMobile

**planet.**

**NASA**

**MAXAR**  
TECHNOLOGIES

**seatel**

**amazon**  
web services

**L3HARRIS™**

**Viasat™**

**SWARM**

**speedcast**

**SPACEX**

**MOMENTUS**





Chapter 3

# **BUSINESS AREAS**

## 01 | GROUND STATION SERVICE(1/9)

### Lv1.

#### Ground Station as a Service (GSaaS)

- **Provides Satellite Data Downlink and TT&C Service** for Satellite and Launch Vehicle Operators
- Web-based User Interface for Satellite Operation and Pass Scheduling

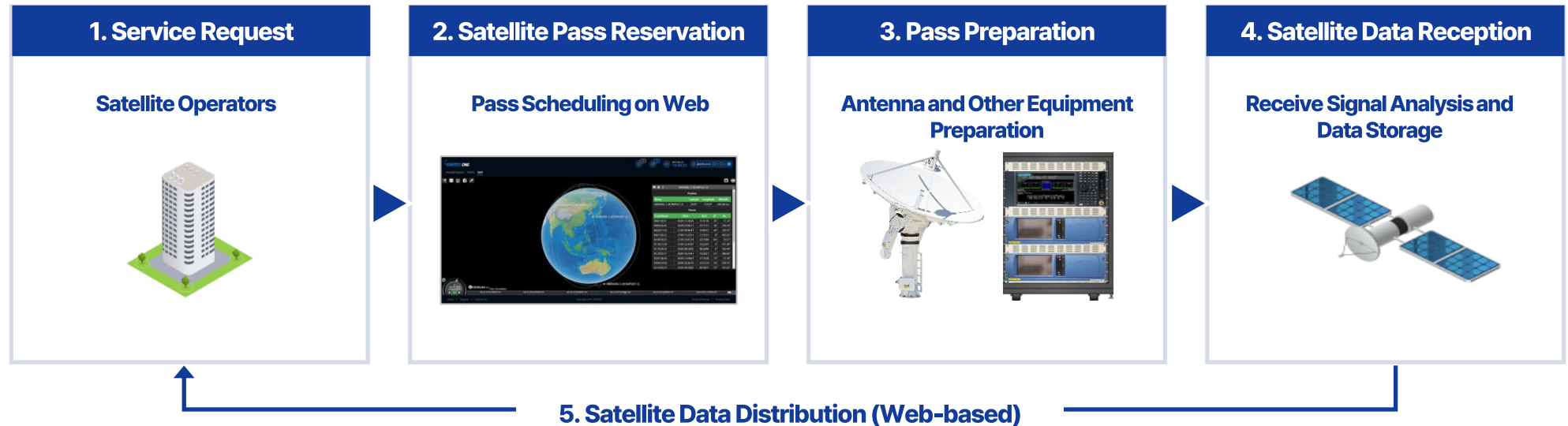
ABOUT CONTEC

 BUSINESS MODEL

FUTURE PLAN

\* Supported Frequencies VHF/UHF-Band, S/X-Band, Ka/Ku Band(near future)

#### Service Procedures

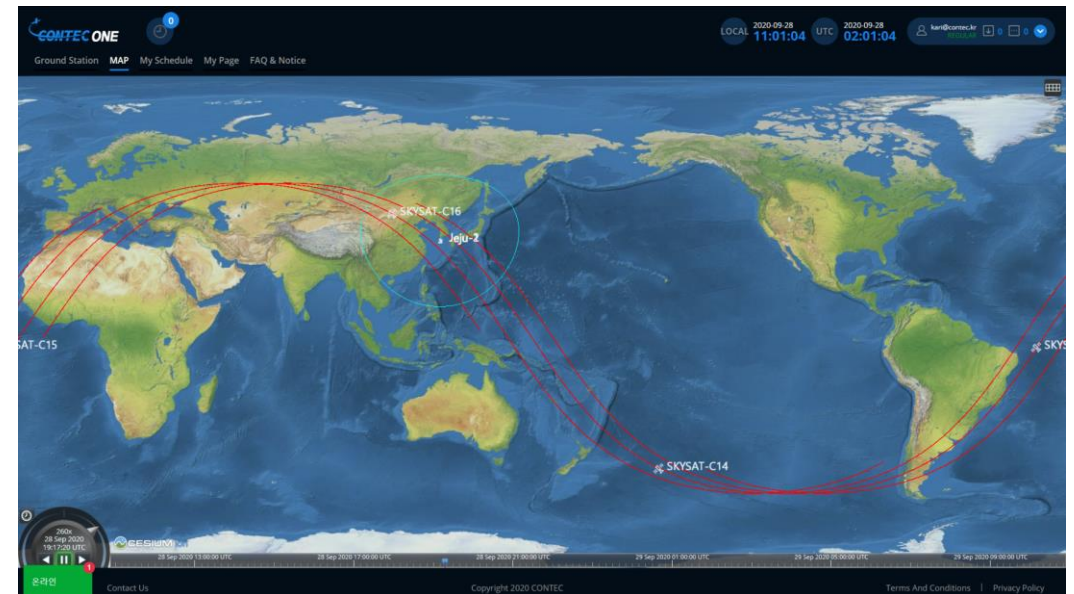




## Our Global Ground Station Network



## 01 | GROUND STATION SERVICE(3/9)



Ground Station in Jeju



## 01 | GROUND STATION SERVICE(4/9)

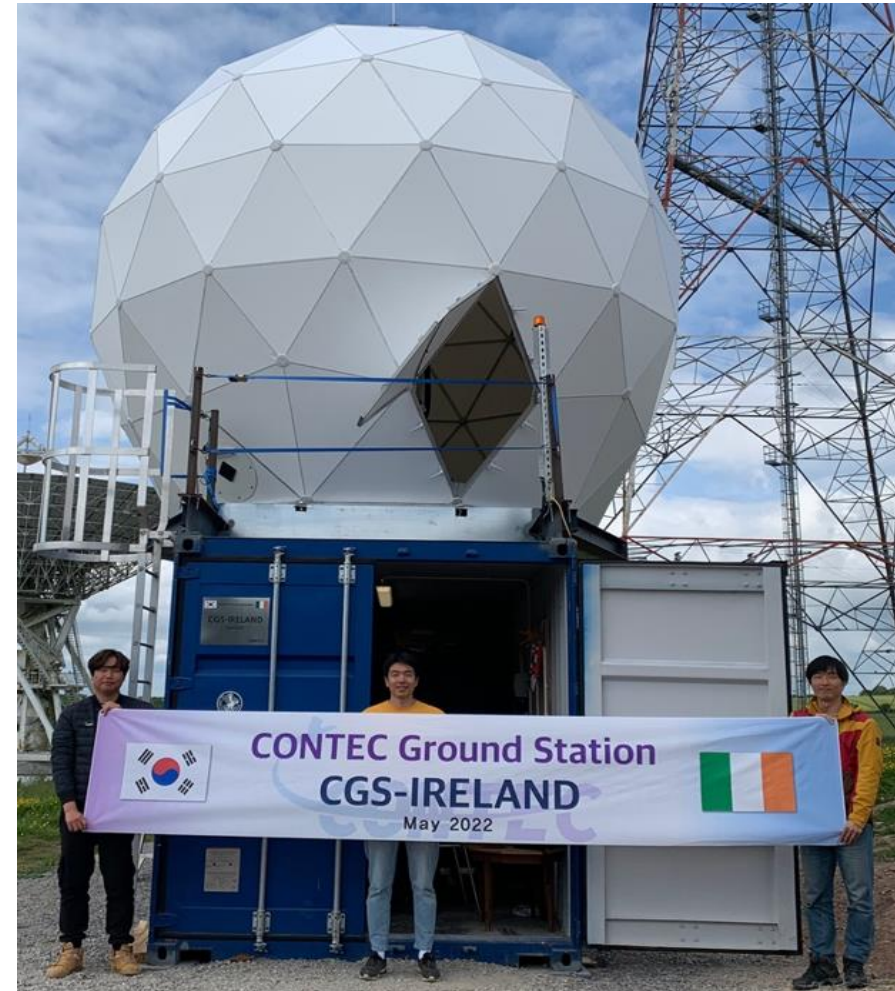
ABOUT CONTEC

**BUSINESS MODEL**

FUTURE PLAN



Alaska GS(Latitude: 70 degree) : 6m S/X-Band



Ireland GS : 4m S/X-Band

## 01 | GROUND STATION SERVICE(5/9)

ABOUT CONTEC

**BUSINESS MODEL**

FUTURE PLAN



Sweden GS(Latitude: 68 degree) : 6m S/X-Band



South Africa : 6m S/X-Band



## 01 | GROUND STATION SERVICE(6/9)

ABOUT CONTEC

**BUSINESS MODEL**

FUTURE PLAN



Finland GS(Latitude: 68.7 degree) : 4m S/X-Band

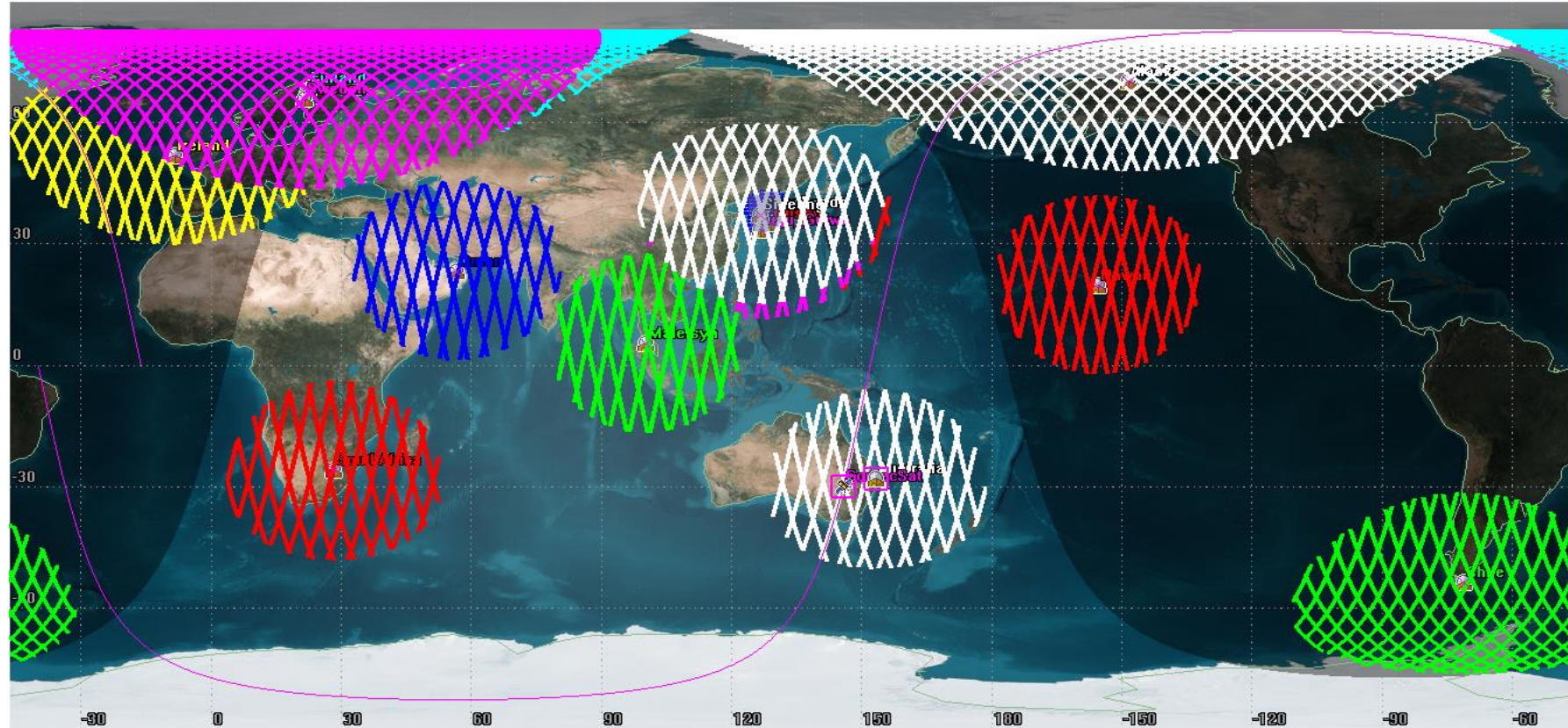


Australia 5.5m with S/X/KA-Band  
(Under Construction)

## 01 | GROUND STATION SERVICE(7/9)

### Imaging Mission Scenario

- Average 17' using CONTEC's Global Ground Network



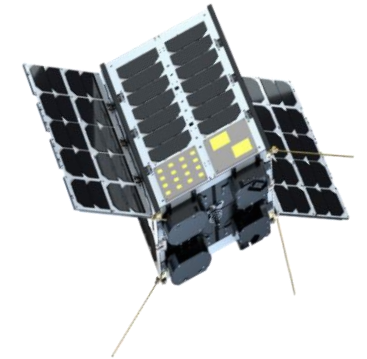
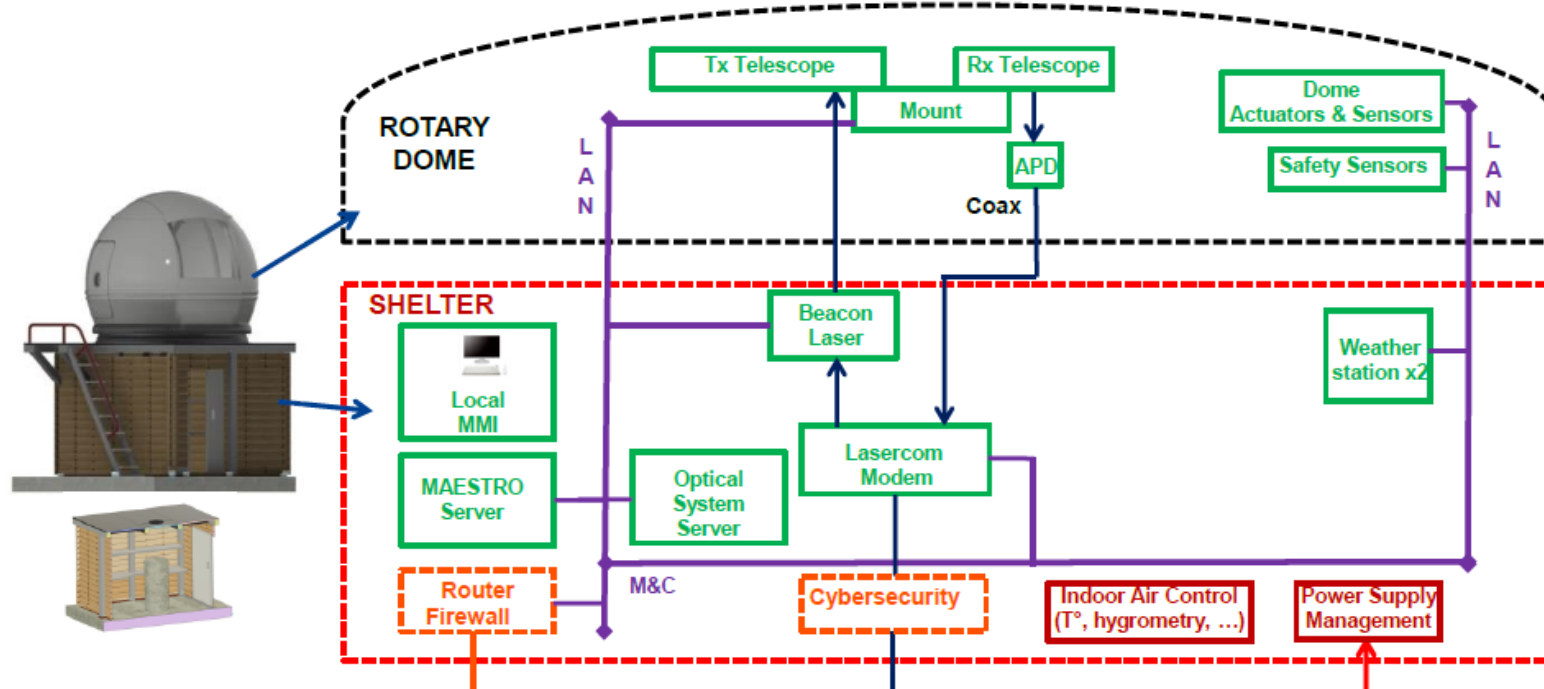


## 01 | CONTEC's OGS (KSAT+SAFRAN+CAILABS)/ (8/9)

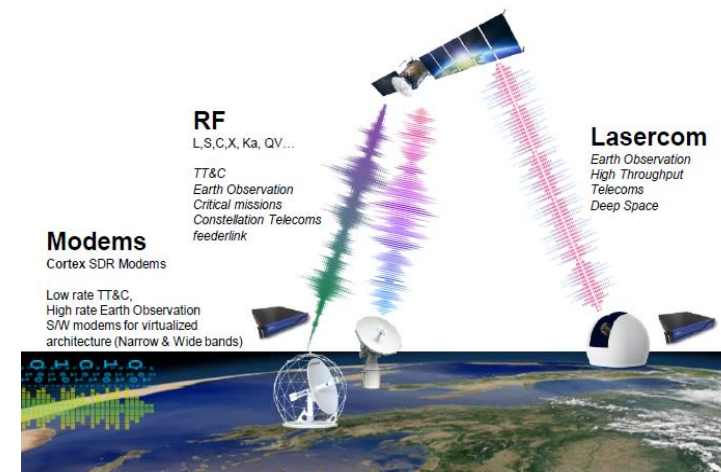
ABOUT CONTEC

BUSINESS MODEL

FUTURE PLAN



CONTEC SAT#1(RF/Laser)  
With Optical camera + LCT module  
(Launch date: Dec. 2023)



# 01 | SSA SOLUTION NETWORK(SMS+SPACE MAPS) / (9/9)

SSA « back-office »

Data Capture

Independent data  
• Optical sensors network  
• Image Processing

Data Aggregation

External data sources  
• US Air Force  
• Satellite operators  
• Other catalogues

Data Processing

Data Platform



Architecture  
& Fusion



Data Products &  
AI Algorithms

SSA « front office »

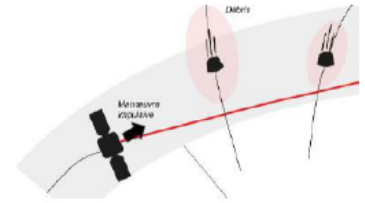
Solutions

Safety

Navigation

Strategic  
intelligence

Space Traffic  
Management



Institutional &  
commercial customers

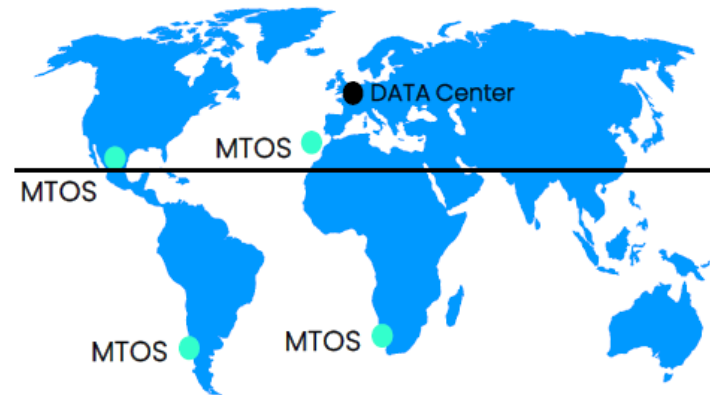
Satellite  
operators

Launchers

Military  
institutions

Space  
Agencies

MTOS Sensors Network





## 02 | SATELLITE IMAGE PRE-PROCESSING(1/3)

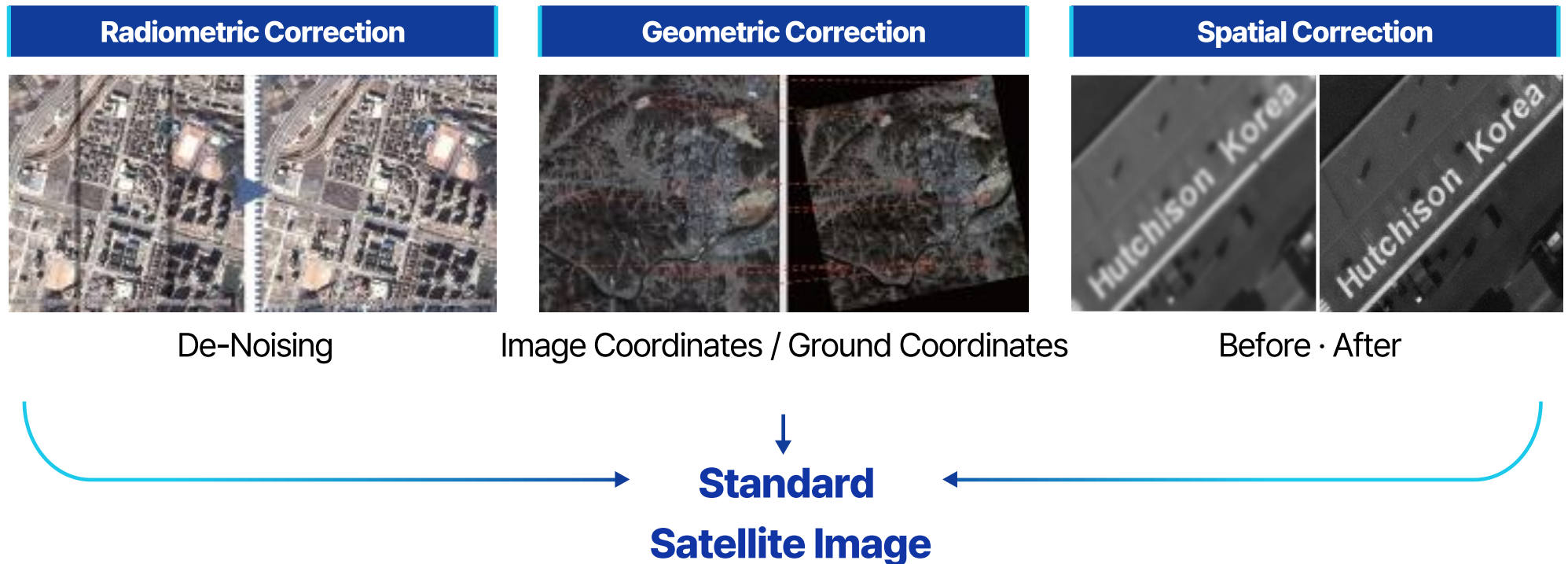
### Lv2. SATELLITE IMAGE PRE-PROCESSING

- Raw Image Data Pre-Processing to Remove Noises
- Radiometric, Geometric, and Spatial Correction using Customized Algorithms According to Satellites' Specification

ABOUT CONTEC

 BUSINESS MODEL

FUTURE PLAN



### Satellite Image High-Speed Data Processing System Development



- KOMPSAT-7 System Development in Progress
- KOMPSAT-3/3A **(Completed)**
- CAS500-1 **(Completed)**

### Satellite Image Calibration Software Development



- KOMPSAT-7 System Development in Progress
- CAS500-1 **(Completed)**





# Pre-Processing (EO/SAR) System for Satellites Scheduled for Launch in the Future

KARI, CONTEC, OOO etc.

ABOUT CONTEC

 BUSINESS MODEL

FUTURE PLAN



KOMPSAT-7A

CAS500-2, 4

Nano Satellite ~11



EO Satellite

SAR Satellite

OOO International Customers

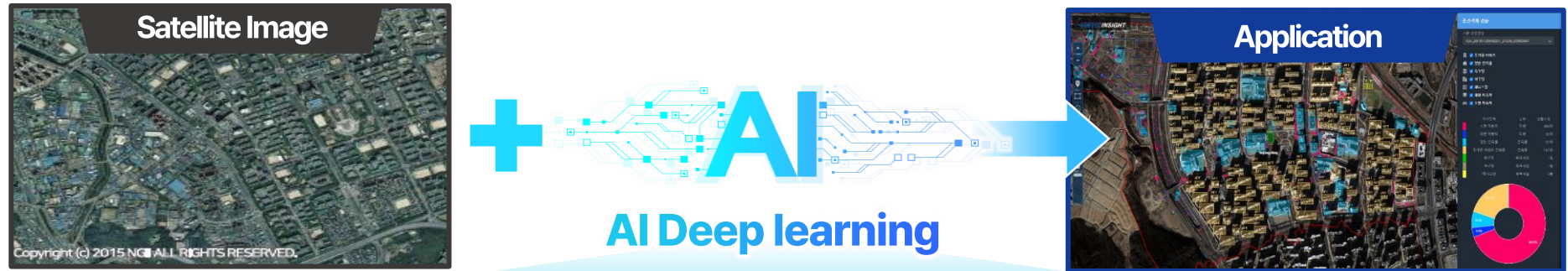
Military Reconnaissance Satellite  
(EO/SAR)

## 03 | SATELLITE IMAGE APPLICATION(1/3)

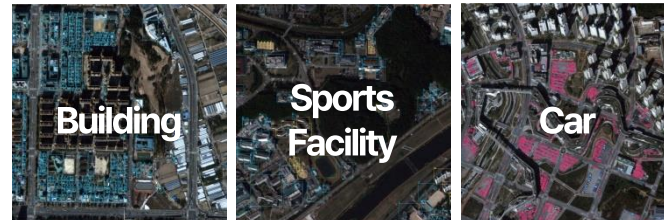
**Lv3.**

### SATELLITE IMAGE APPLICATION

- Deep Learning-based Satellite Image Application Service
- **Web-based Application Platform to Perform City Management, Port Facility Monitoring, and Disaster Analysis**



#### Spatial Object Detection



+

#### Semantic Segmentation





## 03 | SATELLITE IMAGE APPLICATION(2/3)

### B2G/B2B Service

#### Service Area



#### Smart City

City Change Monitoring

Statistical Analysis

Illegal Building Detection

Infra Management



#### Maritime

Settlement Analysis

Ship Detection

Port Change Detection

Pollution Detection



#### Agriculture

Land Change Detection

Forest Change Detection

Crop Yield Forecasting

(Tangerine, Cabbage, Carrot, Radish, Garlic, Onion, etc.)



#### Disaster

Target Detection

Training Support

Disaster Analysis

(Earthquakes, Landslide, Floods, etc.)

#### Available Services

#### Customers



### 03 | SATELLITE IMAGE APPLICATION(3/3)

## Available Services



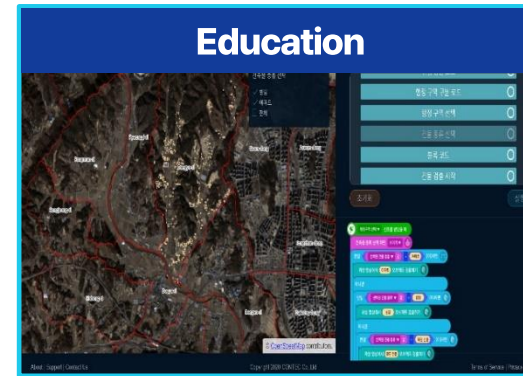
## Customers

## Direct Sales to Individuals

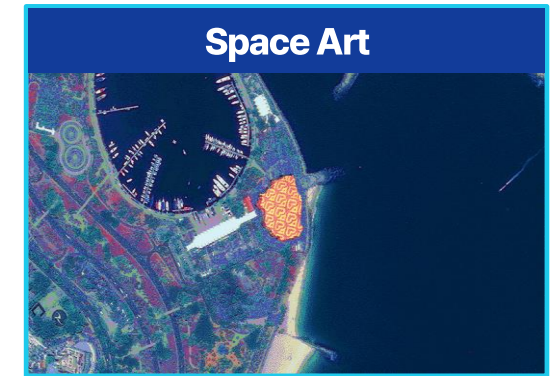
- Blockchain and Cryptocurrency linked payment



## B2C Service



All Elementary/Middle/High School  
Students in Korea  
Luxembourg Board of Education  
(under discussion)



## Direct Sales of Artworks to Individuals

### - Cooperation with Gallery Companies







Chapter 4

**FUTURE PLAN**

## Value Chain for Company Growth

### Value Chain

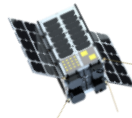
Satellite Data  
Downlink/Processing

Satellite Data  
Application

Total Solution

STEP3

### CONTEC-Sat Operation/ Space Park Establishment



#### CONTEC-Sat Launch

Direct Satellite Data  
Production by Operating  
Our Own Satellite



#### FSO Development

Space-to-Ground  
Optical Communication  
Development



#### SSA/STM Service

Space Surveillance  
System Operation



#### Mission Operation Center

Establishment of  
Operation Center with  
Local Municipalities



#### B2C Space Business

Space art/NFT,  
Space Entertainment  
Business Expansion

STEP2

### Satellite Image Application Service

#### Ground Infrastructure (Lease or Joint Construction)

Stable Revenue  
Generation

Ground Station  
Network Expansion



#### Satellite Image Pre-Processing and Application

Application  
System Development

Application  
Service Launch

STEP1

### Ground Station Service

GS Implementation



Securing Customers



Service Launch



## 01 | VISION (2/3) Asian Space Park(ASP) (1/2)

ABOUT CONTEC

BUSINESS MODEL

 FUTURE PLAN

### Asian Space Park(100,000m<sup>2</sup>) (Operated by CONTEC)



GSaaS(With CONTEC's GS)



Space Education Center



Mission Control for Satellite and LV



## 01 | VISION (2/3) Asian Space Park(ASP) (2/2)

ABOUT CONTEC

BUSINESS MODEL

**FUTURE PLAN**



Location: Jeju, South Korea



# | CONTEC |

**WE EXPECT A NEW START IN THE GLOBAL SPACE MARKET  
WITH OUR TECHNOLOGY AND SERVICE**

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