

STRATOSPHERIC ISR PLATFORM (20 KM ALTITUDE)

Empyreal Galaxy introduces a High Altitude Super Pressure Balloon (SPB) platform designed to deliver persistent wide-area surveillance, real-time intelligence, and multi-mission payload capability from the stratosphere. Operating above commercial airspace and weather disturbances, the SPB platform provides stable, long-endurance monitoring with significantly lower cost compared to satellites and aircraft.

APPLICATION AREAS

- Defence & Homeland Security
- Border & Coastal Surveillance
- Strategic Intelligence Gathering
- Disaster Monitoring & Response
- Communication & Signal Intelligence
- Atmospheric & Weather Analysis

SYSTEM CAPABILITIES

Electro-Optical (EO/IR) Surveillance

- Long-range imaging (30–100+ km capability)
- Multi-spectral (VIS / NIR / SWIR / MWIR)
- Precision stabilization & tracking
- Day / Night ISR capability

SIGINT Payload

- Communication interception (COMINT)
- Electronic intelligence (ELINT)
- Wideband RF monitoring (kHz–GHz range)
- Signal detection, classification & geolocation

Meteorological Payload

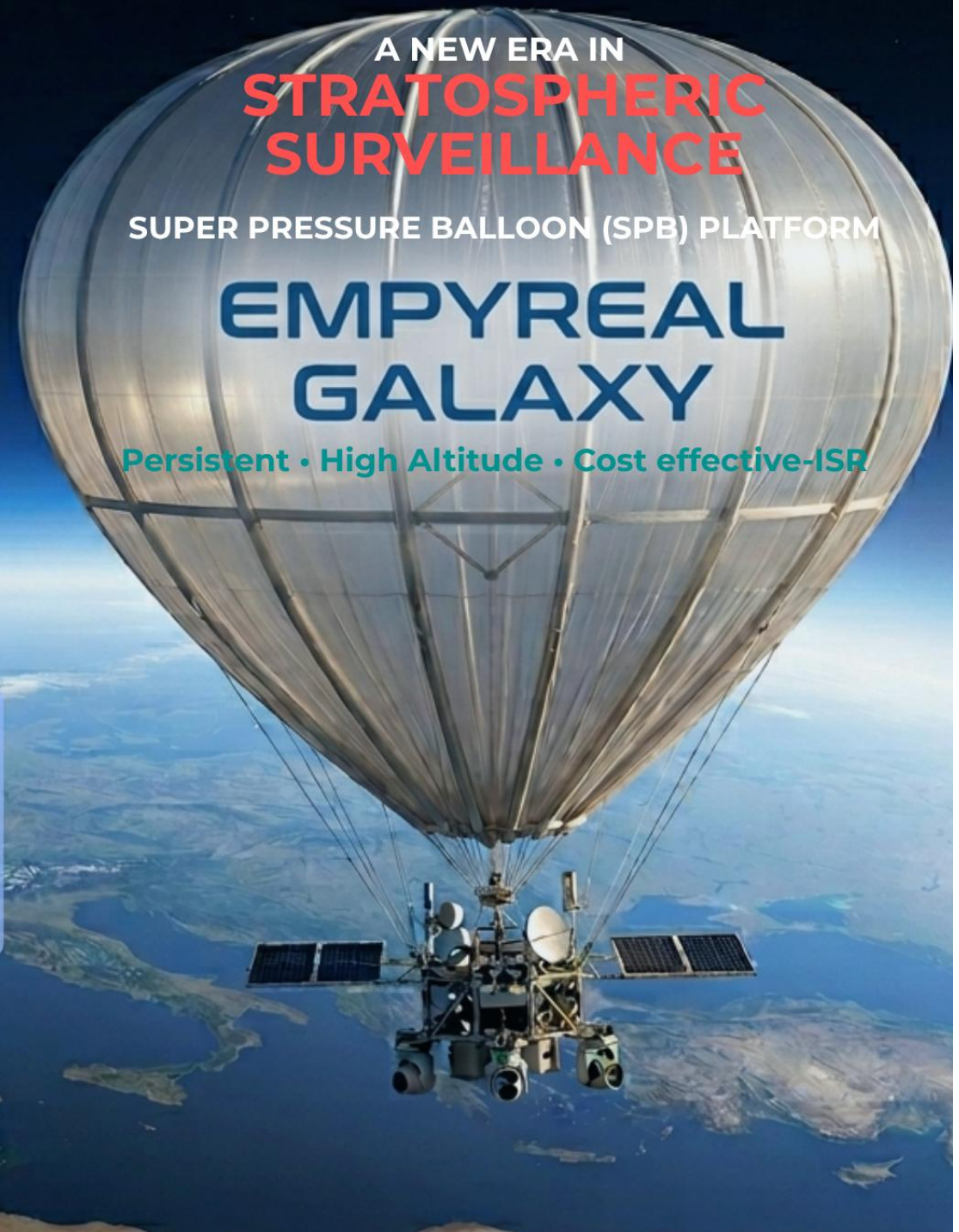
- Temperature, pressure, humidity
- Wind speed & direction profiling
- Atmospheric data collection

A NEW ERA IN STRATOSPHERIC SURVEILLANCE

SUPER PRESSURE BALLOON (SPB) PLATFORM

EMPYREAL GALAXY

Persistent • High Altitude • Cost effective-ISR



CORE PLATFORM ADVANTAGES

- Near zero revisit time (continuous observation)
- Station-keeping capability (wind-layer exploitation)
- Rapid deployment and mobility. Reusable and scalable architecture
- Make in India aligned system

KEY HIGHLIGHTS

- **Persistent Surveillance**
Continuous monitoring for days to weeks
- **High Altitude Operation**
~18–20 km (Stratosphere)
- **Wide Area Coverage**
200–300 km operational footprint
- **Multi-Payload Capability**
EO/IR + SIGINT + Meteorological Sensors
- **Real-Time Data Transmission**
Secure LOS / SATCOM communication
- **Cost-Effective Alternative**
Significantly lower than satellite & UAV operations

PLATFORM SPECIFICATIONS

Parameter	Specification
Altitude	18-20km
Endurance	48 hrs to multi-day
Payload	50 to 250 kg
Coverage	~200-300 km
Power	Solar+Battery
Communication	LOS+SATCOM

GROUND SEGMENT

- Ground Control Station (GCS)
- Real-time telemetry & payload control
- Secure communication links
- AI-enabled data processing

AI-ENABLED ISR

- Automated object detection
- Threat identification & anomaly detection
- Multi-sensor data fusion
- Predictive intelligence

KEY DIFFERENTIATORS

- Persistent ISR without satellite dependency
- Lower cost per mission vs aerial platforms
- Flexible deployment (mobile / fixed)
- Modular payload architecture
- Indigenous development capability

Contact Us

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