

Precise and Reliable RTK Positioning in the ASEAN region

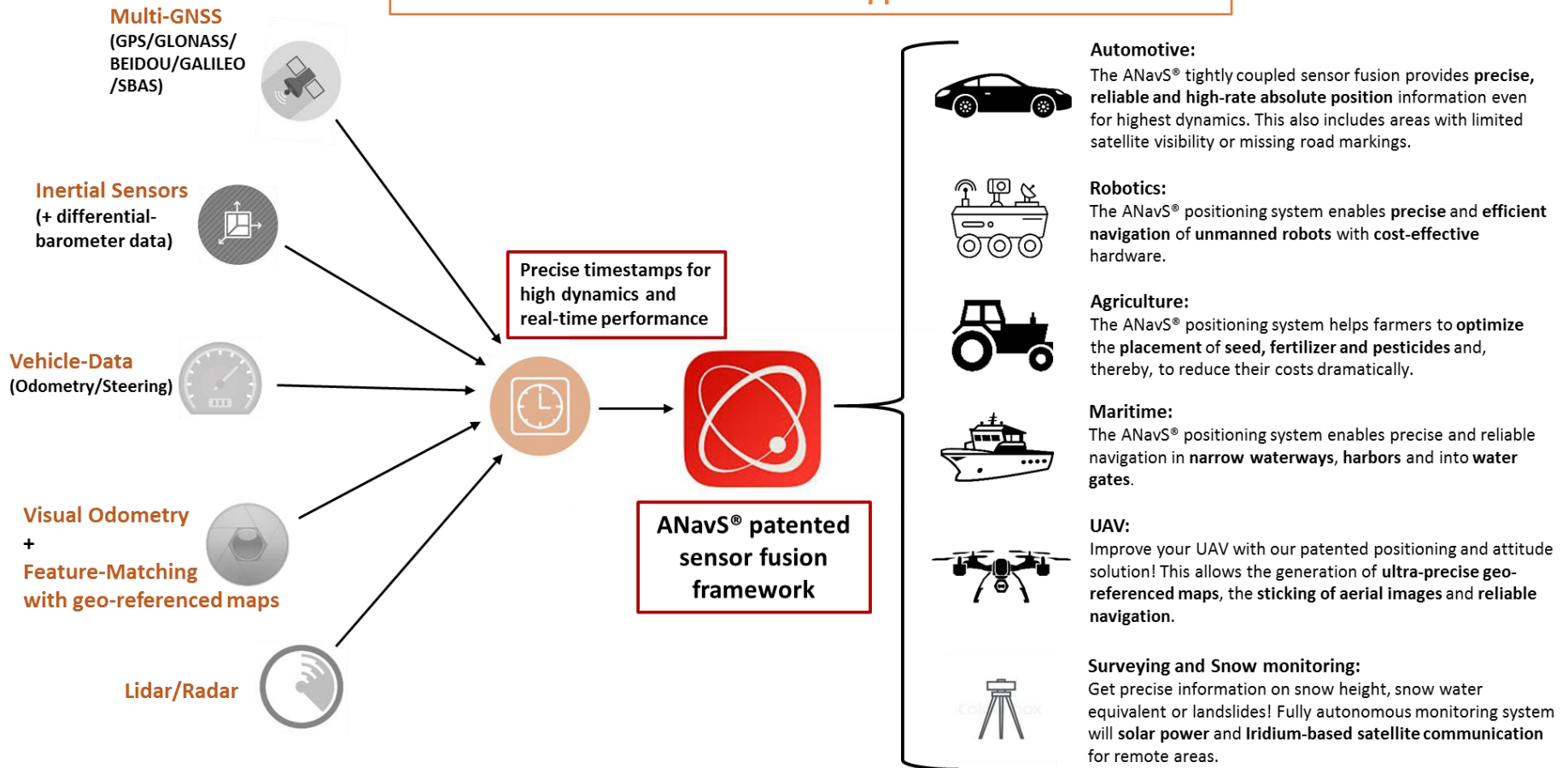


Dr. Patrick Henkel,
Managing director of ANavS GmbH

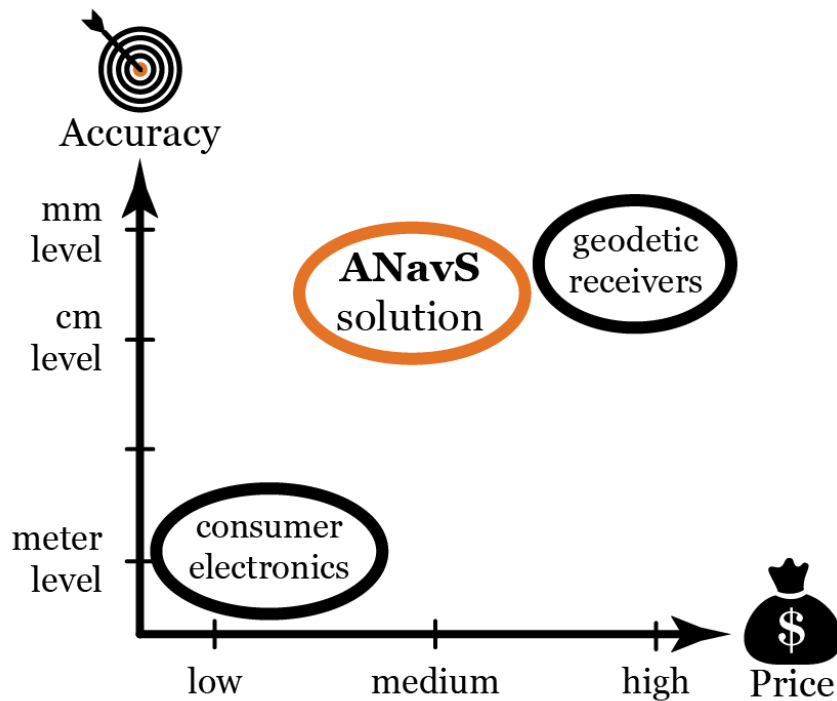







Business of ANavS

Precise and Reliable Position- and Attitude Determination (PAD) with sensor fusion for mass-market applications



Target Market Sector of ANavS



-  HIGH ACCURACY
-  VERY SMALL SIZE, WEARABLE TECHNOLOGY
-  VERY LOW HARDWARE COSTS
-  HIGH OUTPUT RATE
-  VERY LOW WEIGHT

ANavS RTCM Base Station

ANavS RTCM base station:

provides RTK corrections
for precise RTK positioning



ANavS Multi-Sensor Modules



Integrated Sensors:

- Multi-GNSS receiver with either internal or external GNSS antenna
- Inertial sensor with accelerometer, gyroscope and magnetometer
- Barometric sensor

Multi-Sensor RTK Positioning:

- Positioning accuracy:
Horizontal: 1 cm, Vertical: 2 cm
- Tight coupling of GNSS with other sensors for robust positioning



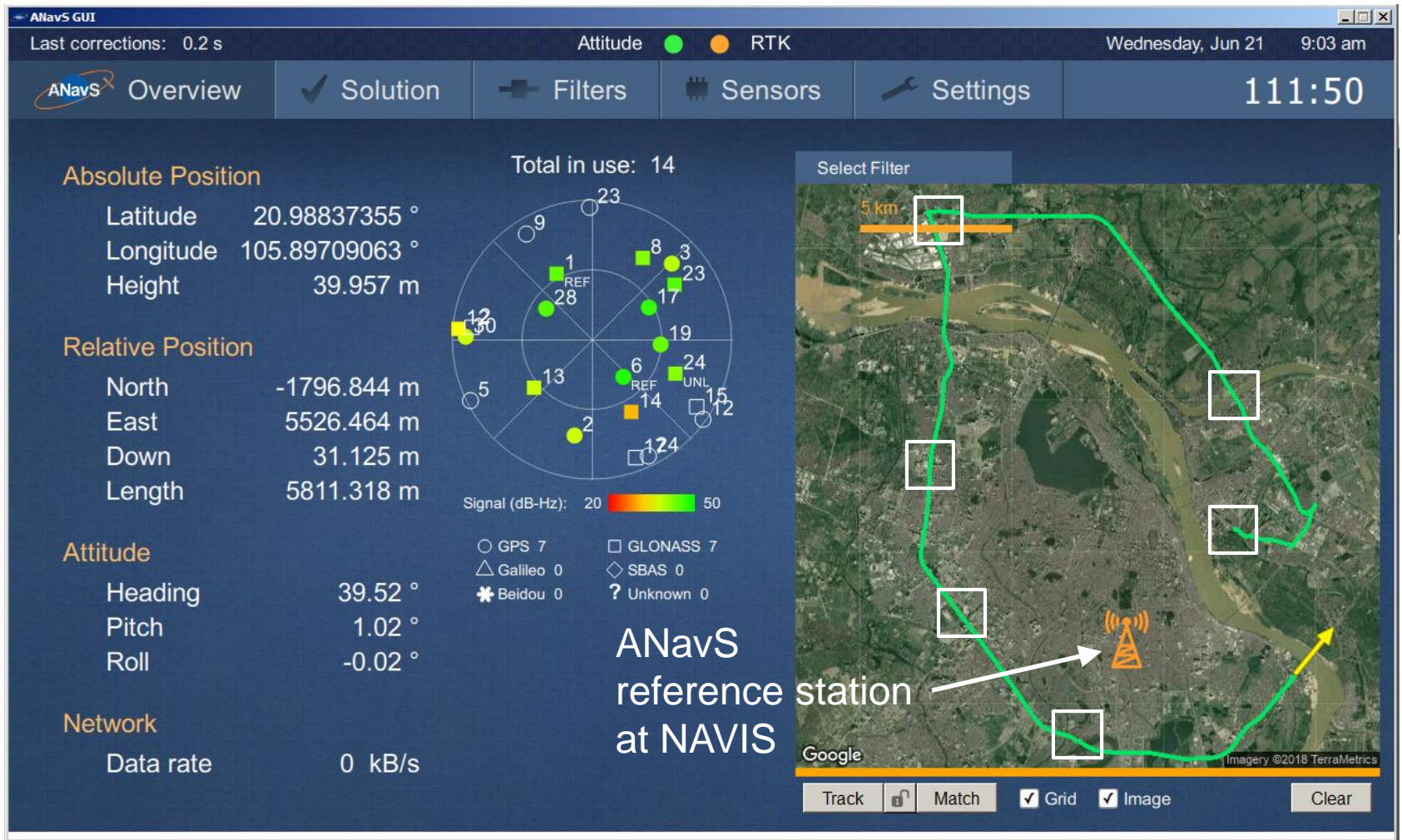
ANavS Multi-Sensor RTK module

Key features:

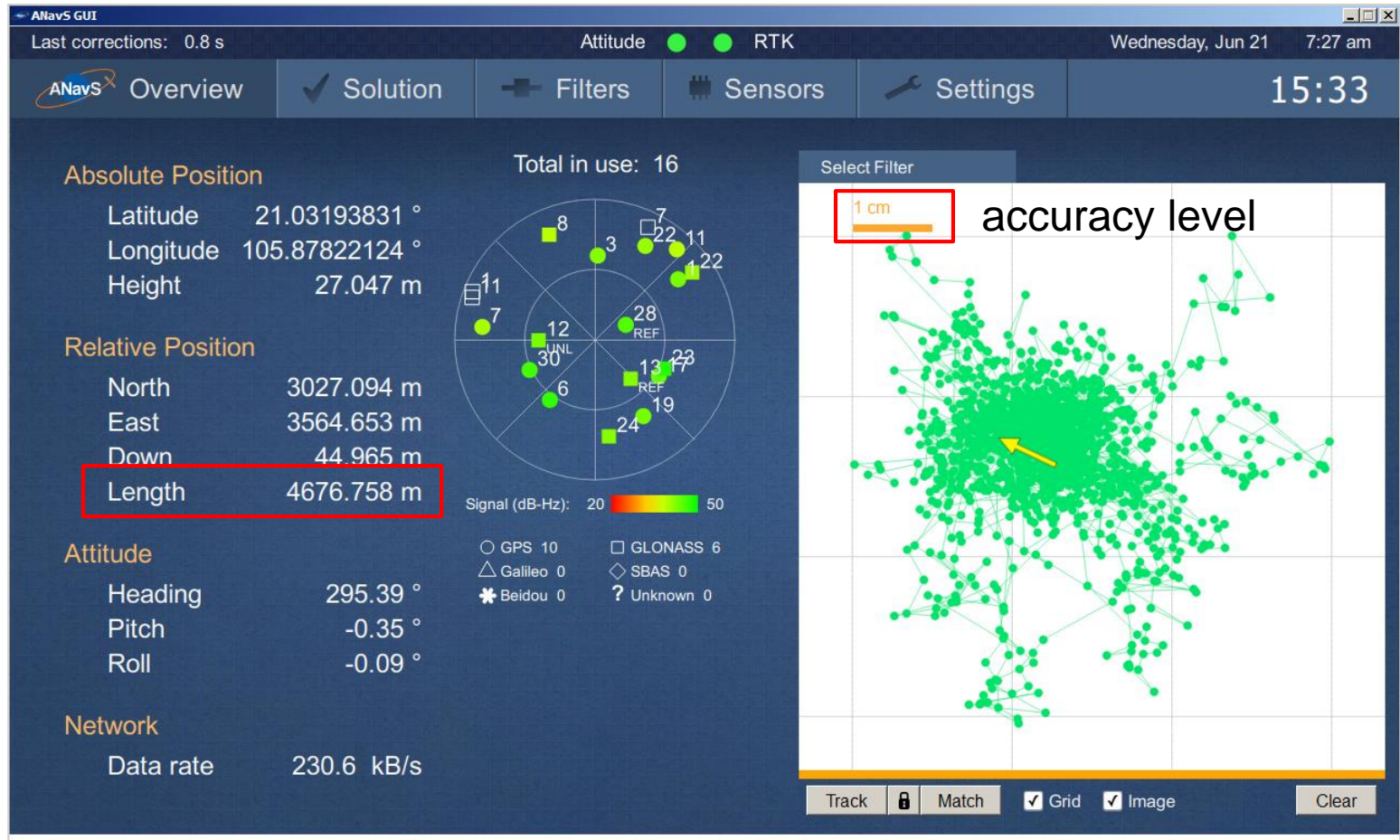
- 1 to 3 integrated Multi-GNSS receivers for RTK positioning and attitude determination
- integrated inertial sensor and barometer for robust positioning
- integrated CAN-bus interface for odometry and CSI interface for camera
- integrated LTE module for reception of RTK corrections
- integrated processor for Multi-Sensor, Multi-GNSS tightly coupled RTK positioning



Track of test drive in Hanoi



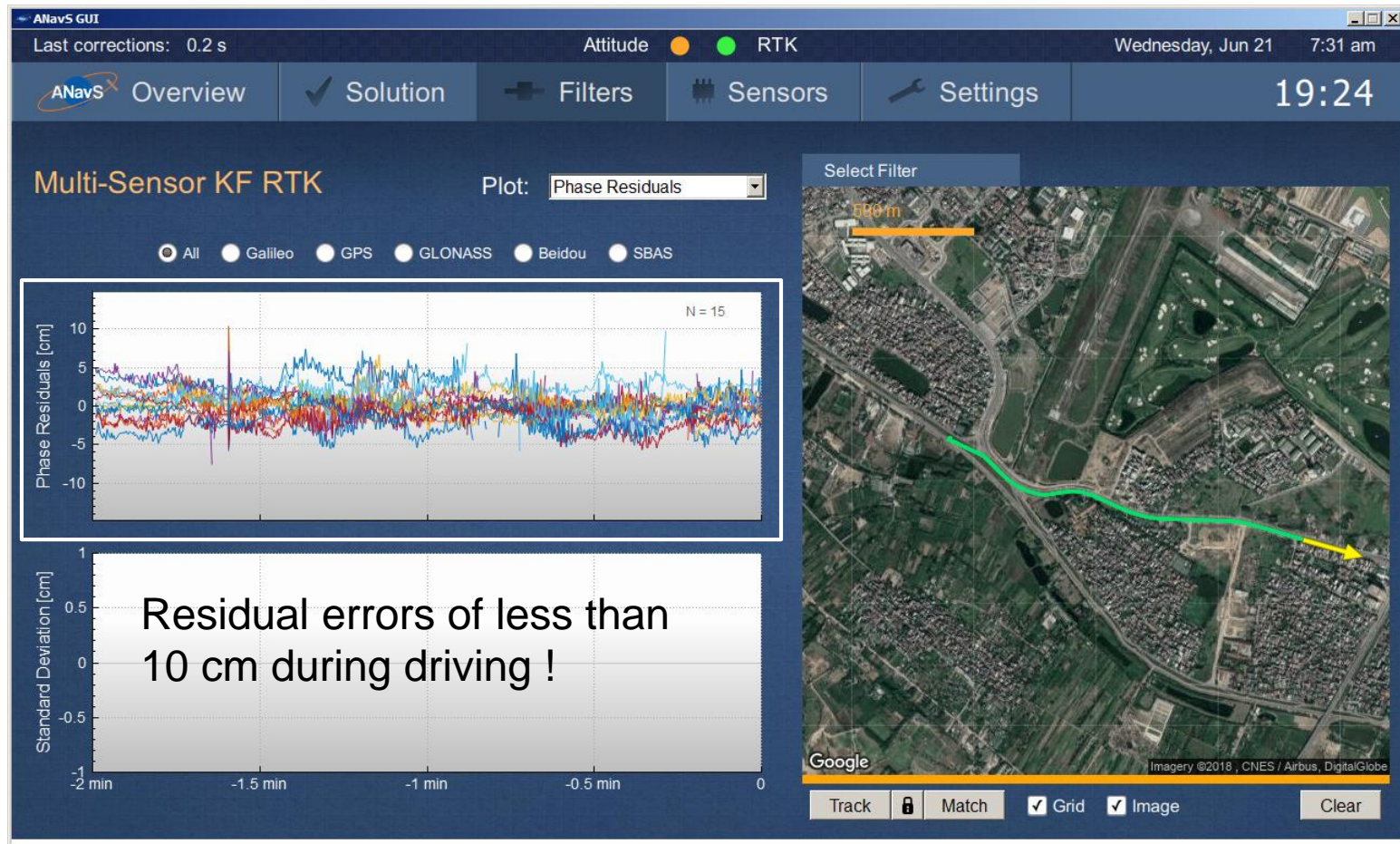
RTK fixing for centimeter-level accuracy



Distance
to
reference
station

during
initialization

Phase residuals of less than 10 cm during drive



Testing of challenging conditions



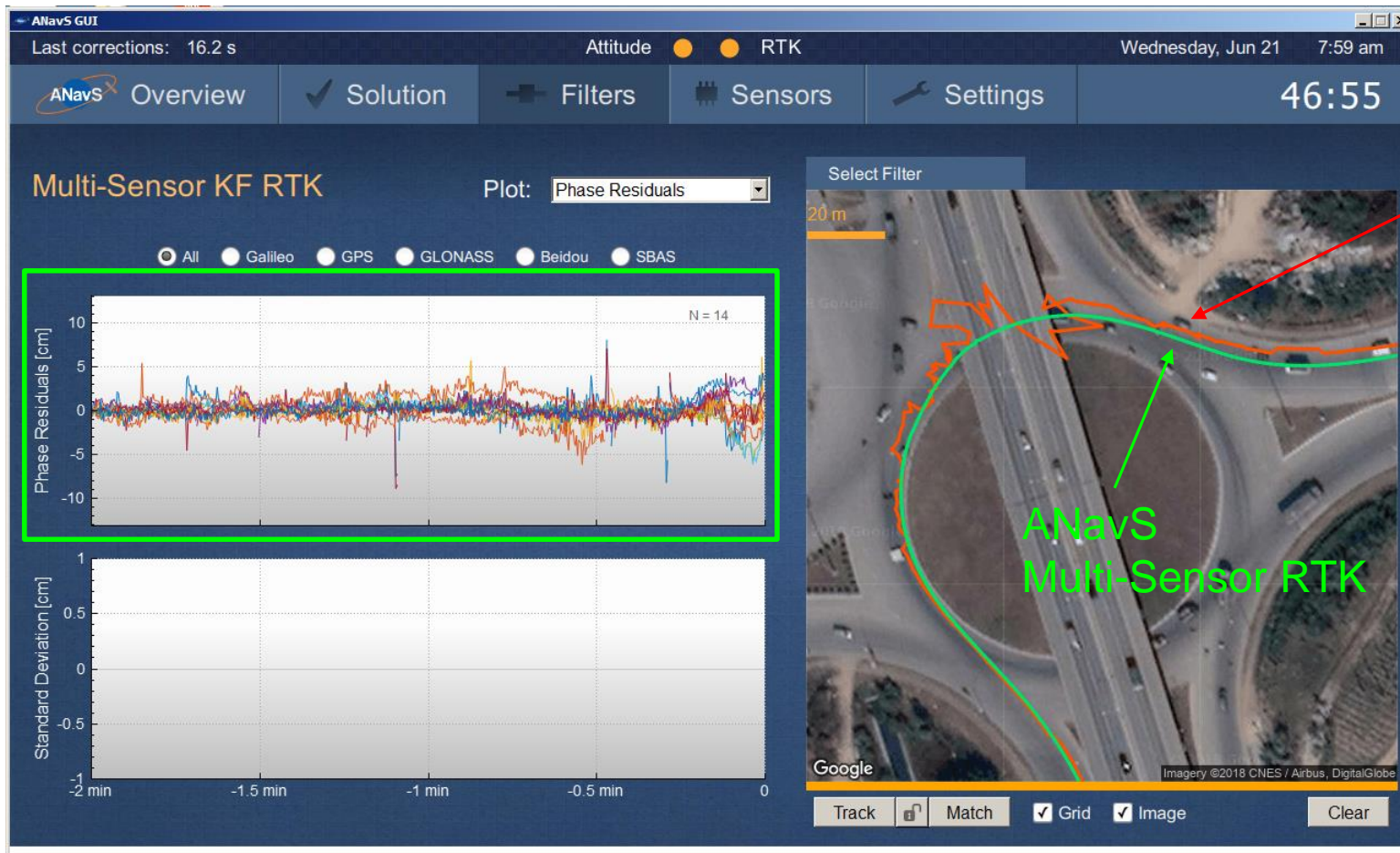
Single
point positioning

Accurate and
jump-free position
information

provided by

ANavS Multi-GNSS/
INS tight coupling !

Testing of challenging conditions with bridges

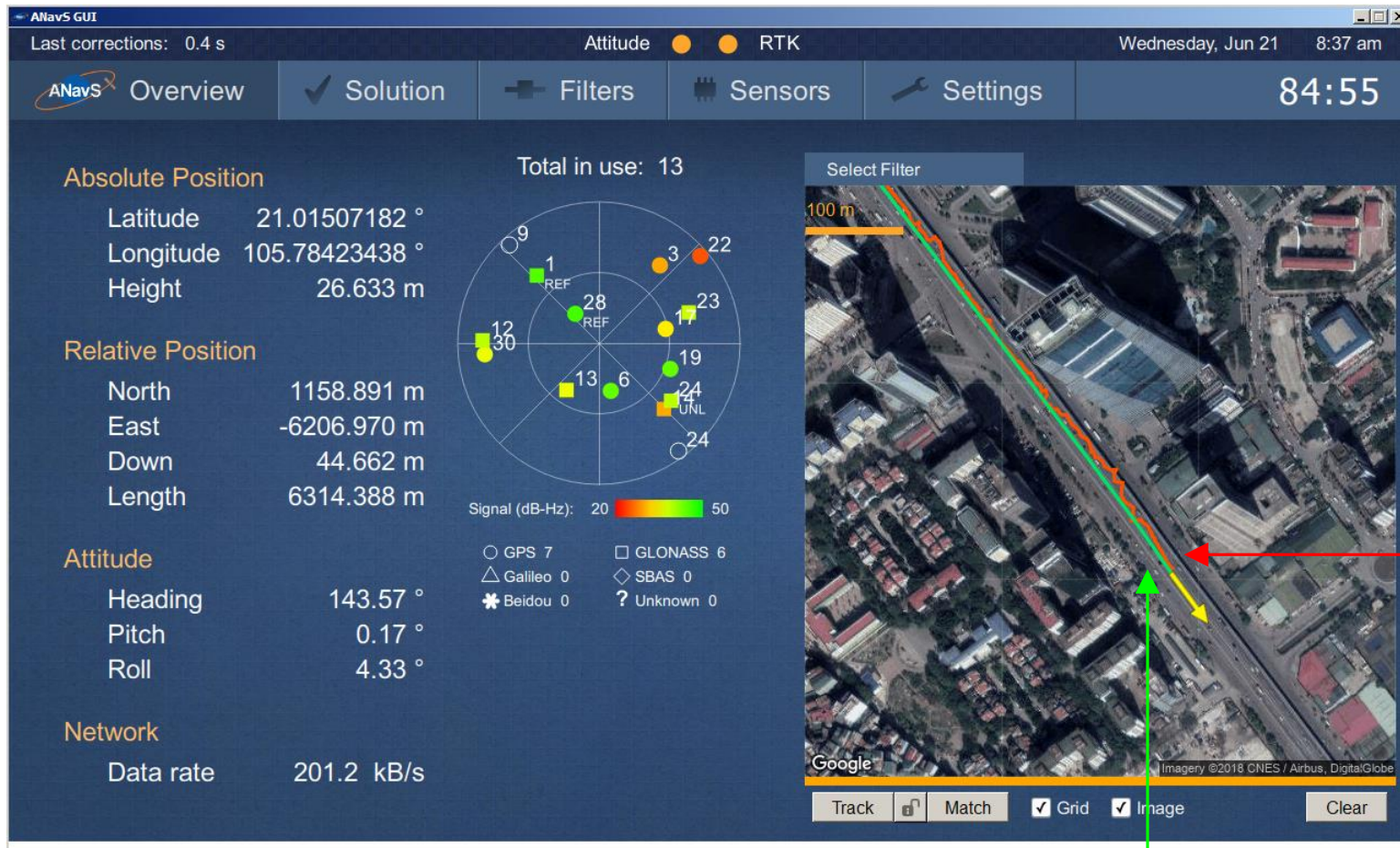


Single
point
positioning

High performance even close to skyscrapers



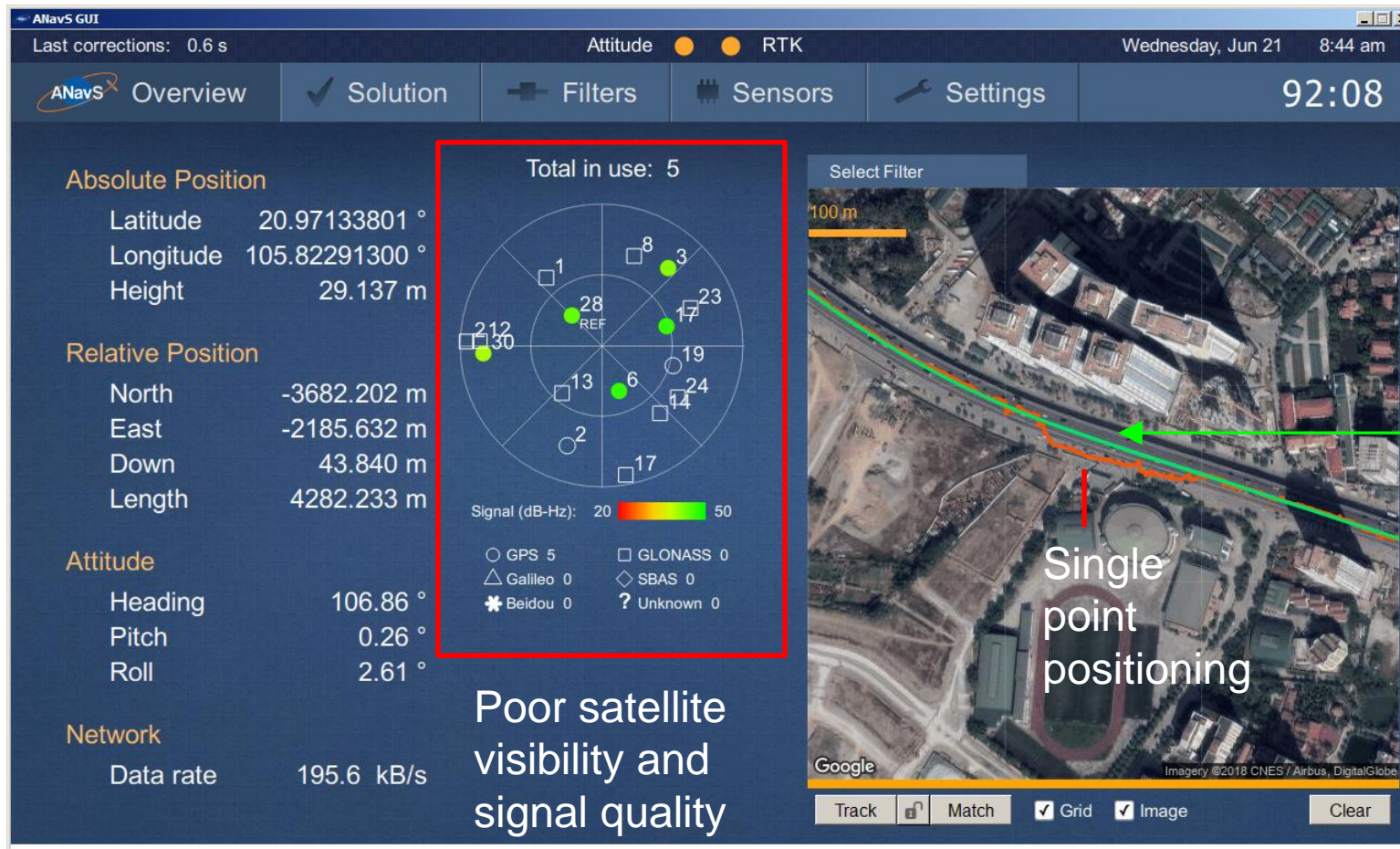
High performance even close to skyscrapers



Single point positioning

ANavS Multi-Sensor RTK

High performance even close to skyscrapers



ANavS
Multi-
Sensor
RTK

Key outcomes from ASEAN collaborations

- Cooperation with NAVIS Centre in Hanoi has enabled ANavS to **expand its network of RTK reference stations** into the **ASEAN region**
- Cooperation with NAVIS centre in Hanoi has enabled ANavS to **demonstrate the performance** of its **RTK positioning systems** in the ASEAN region
- ANavS has **technology** and **products** deployed in ASEAN region for numerous applications
- ANavS is developing a **name** and a **presence** in the ASEAN region thanks to BELS



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Providing Orientation

Advanced Navigation Solutions