



Introduction to the Athena GNSS Engine

June 2015

Agenda

- RTK enhancement at Hemisphere
 - The RTK enhancement project
 - People working on our new positioning technologies
 - Multi-frequency RTK development tracks
- Athena competitive performance
 - Short baselines
 - Initialization performance
 - Canopy performance
 - Kinematic performance
 - Long baselines
 - Scintillation
- Performance Summary
- Supported Hardware
- Atlas Support

The RTK Enhancement Project

- Enhanced RTK performance is one of the key component for high-accuracy positioning products
- Hemisphere decided to create a new group focused on positioning technologies
- This new team was tasked with delivering the new generation of Hemisphere positioning technologies
- The deliverables included an enhanced RTK engine that performs better than the best competitive systems. This engine came to be named “Athena”.

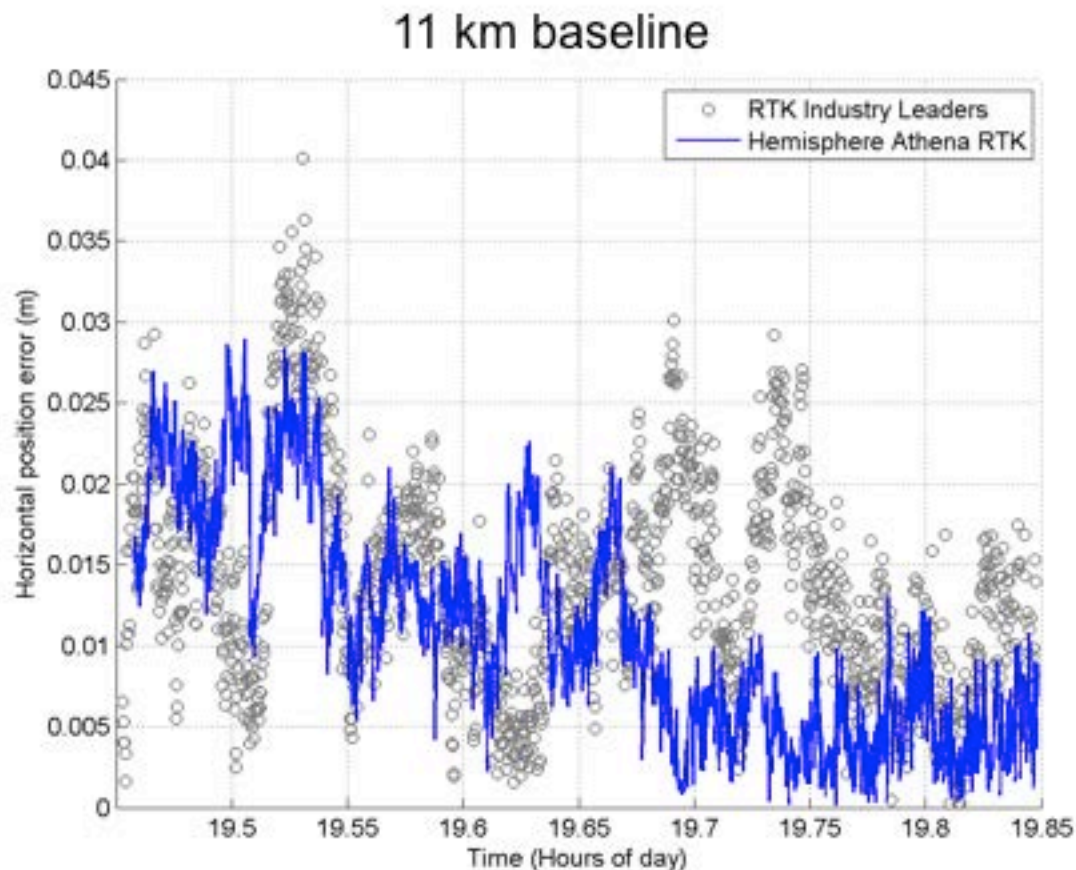
What's Improved in Athena

- Data quality control
- Atmospheric modeling
- Clock modeling
- Base station correction management
- Multi-task architecture
- Traceability
- Development control
- Development environment scalability

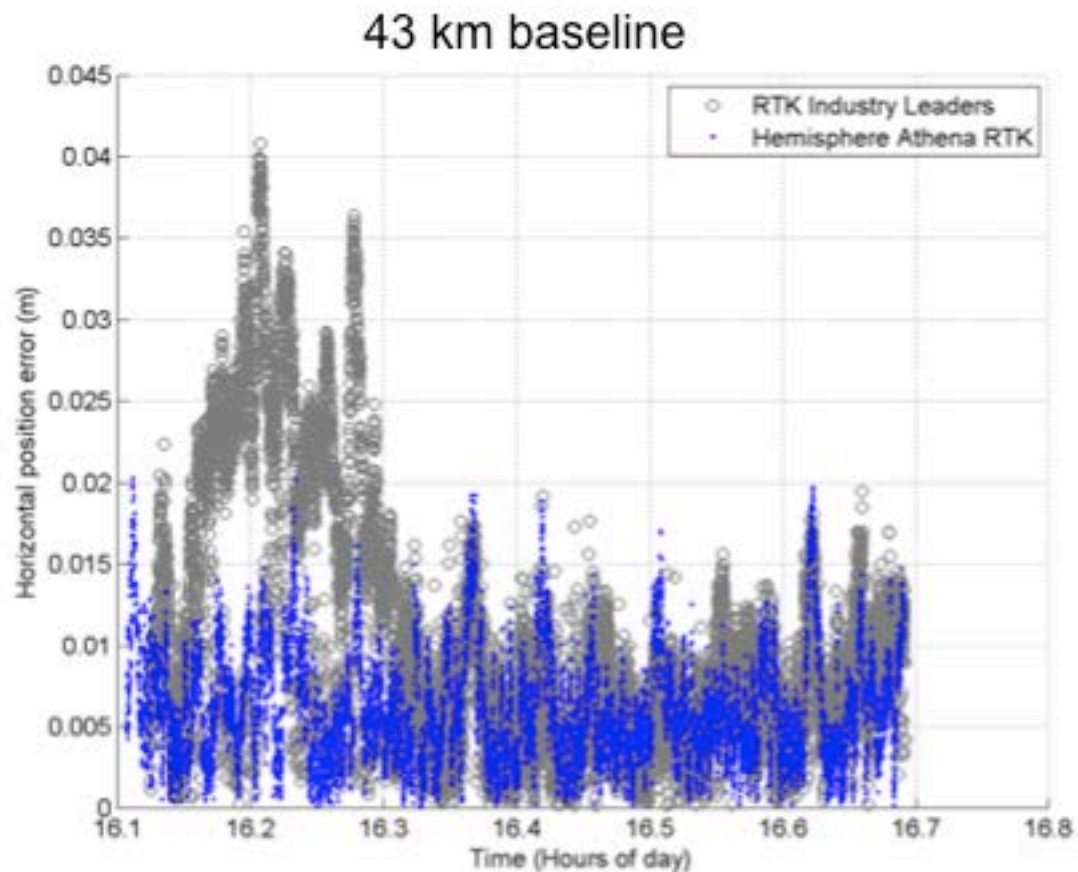
Athena Performance Aspects

- Initialization time – one of the most reliably consistent initialization performances in the industry, while at the same time, performing initializations in less than 15 seconds at better than 99.9% reliability.
- Robustness in very difficult operating environments – extremely high productivity under the most aggressive of geographic and landscape oriented environments for GNSS, while delivering up to 50% better performance in user tests matched against the best competitive systems on the market
- Performance on long baselines – Industry-leading position stability for long baseline applications, with position quality often times exceeding the performance of the best-of-breed RTK systems on the market
- Performance under scintillation – Sustained accuracy under ionospheric scintillation conditions, providing one of the most reliable ways in the market to work with GNSS in scintillation-affected areas

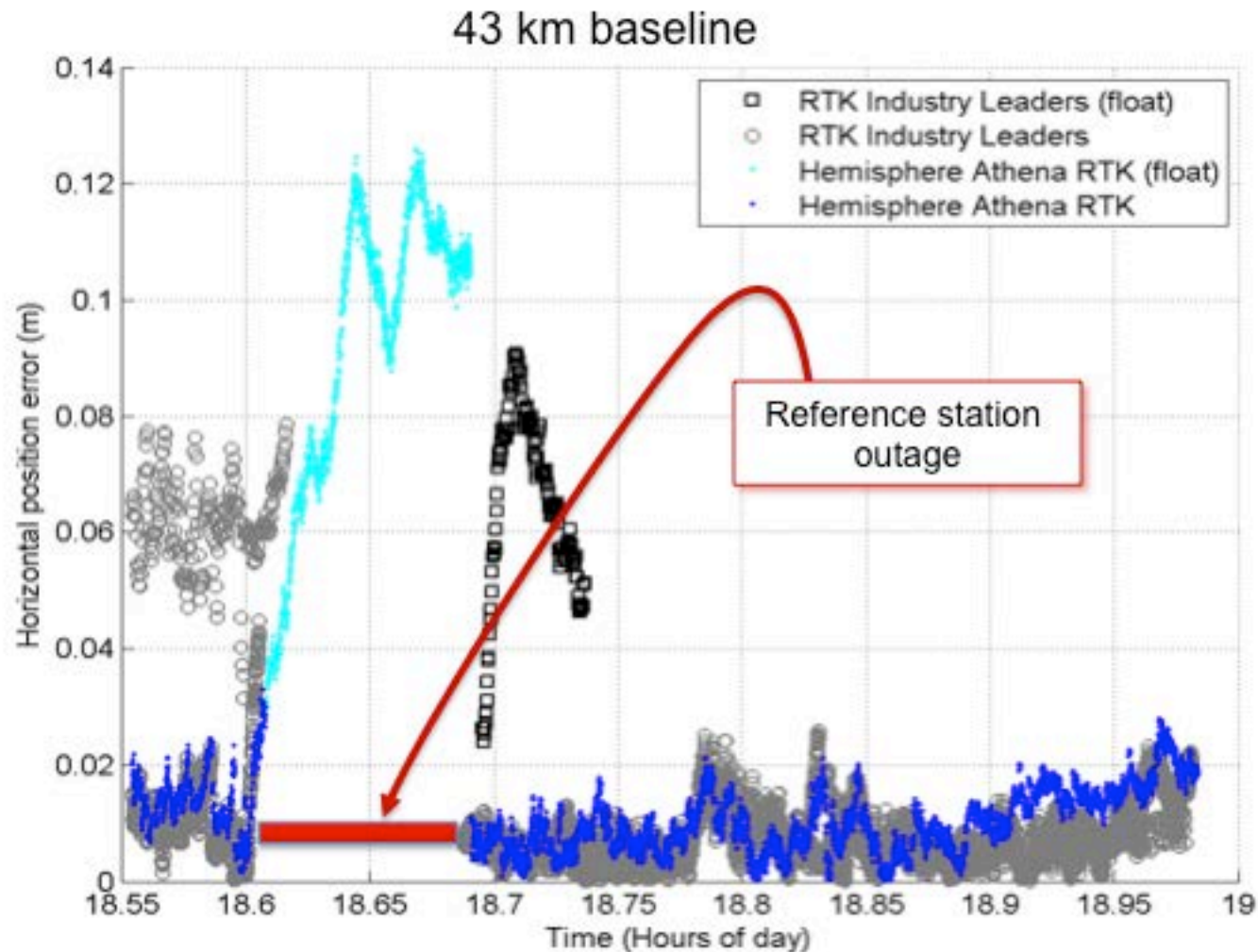
Short Baseline Performance



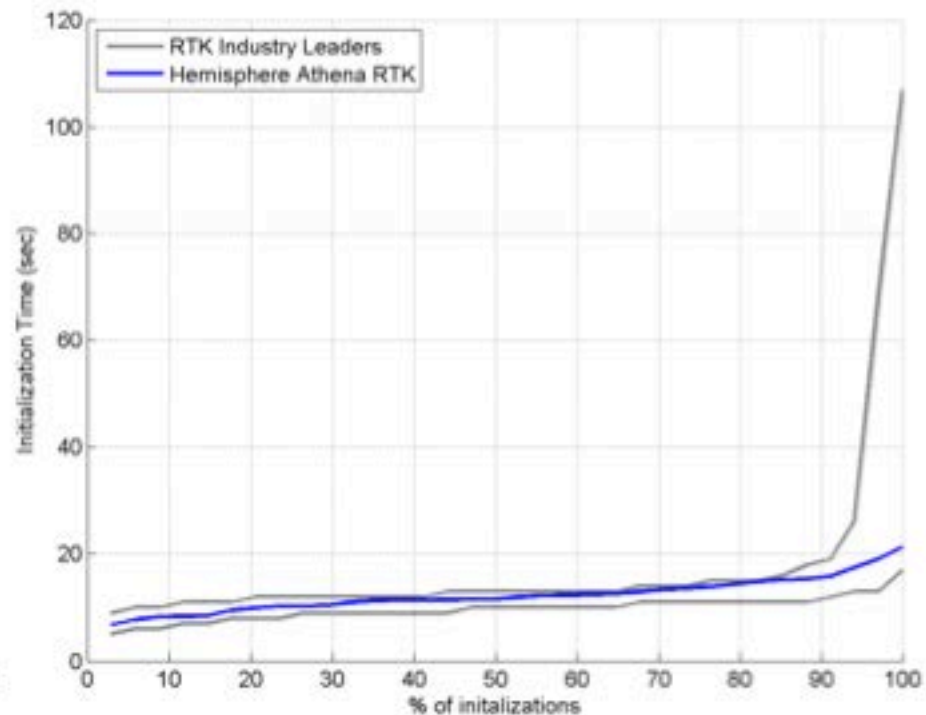
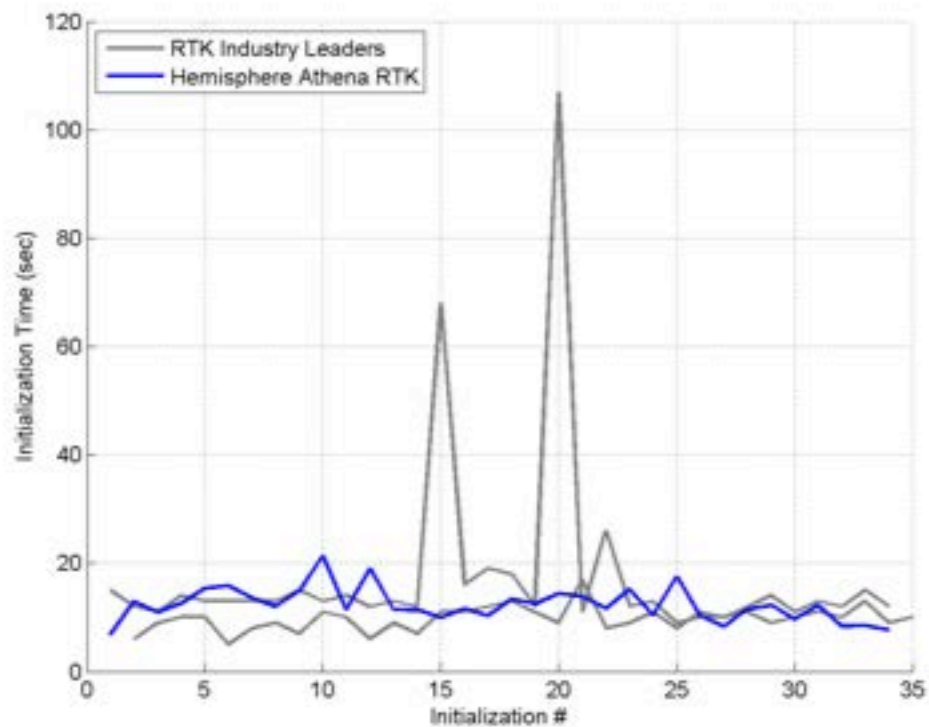
Long Baseline Performance (1/2)



Long Baseline Performance (2/2)

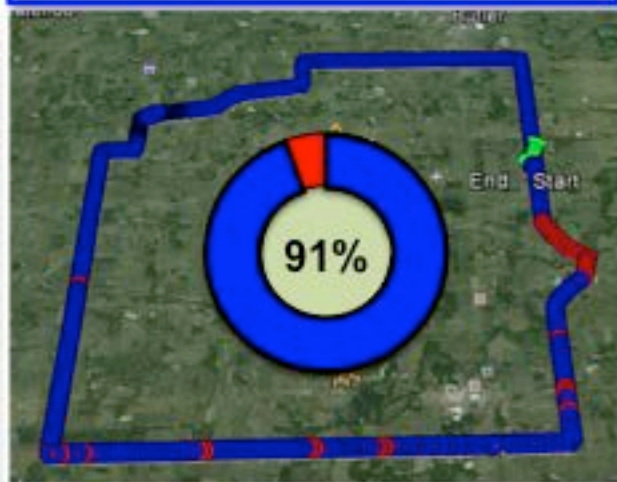


Initialization

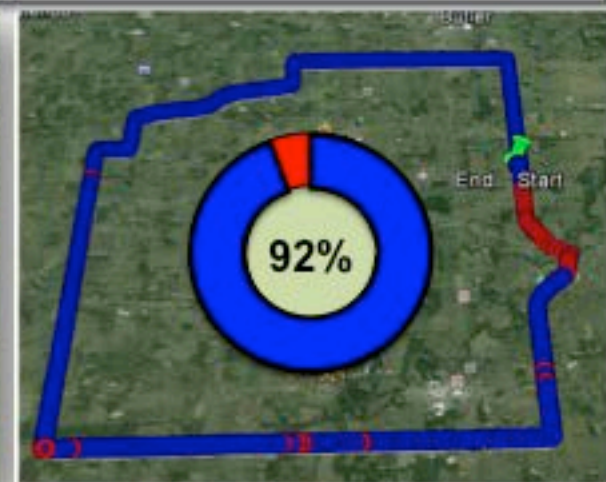
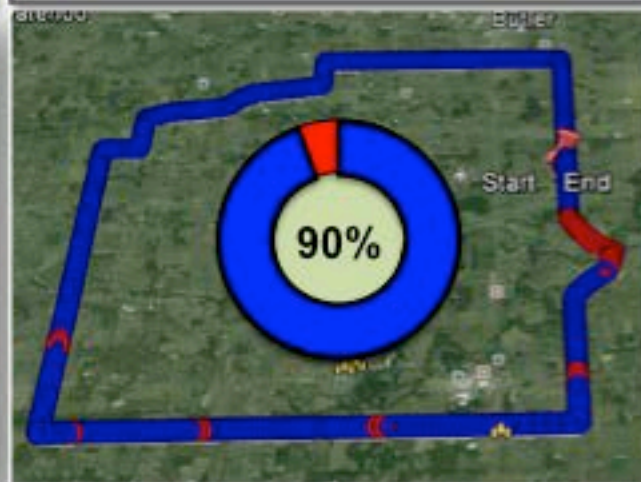


Kinematic Availability

Athena



RTK Industry Leaders

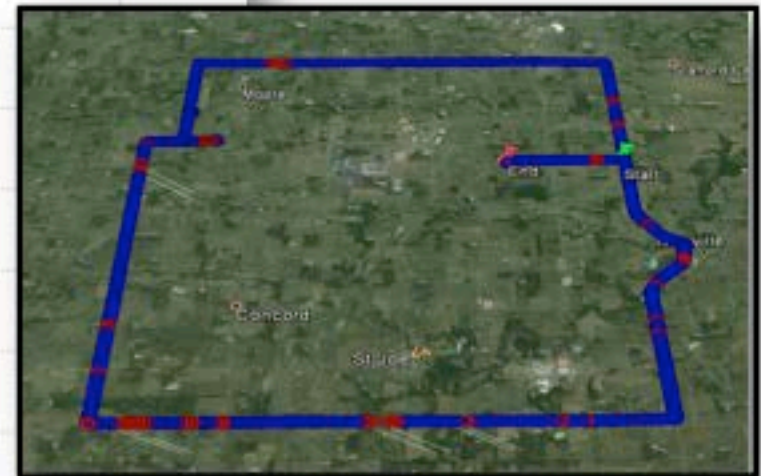
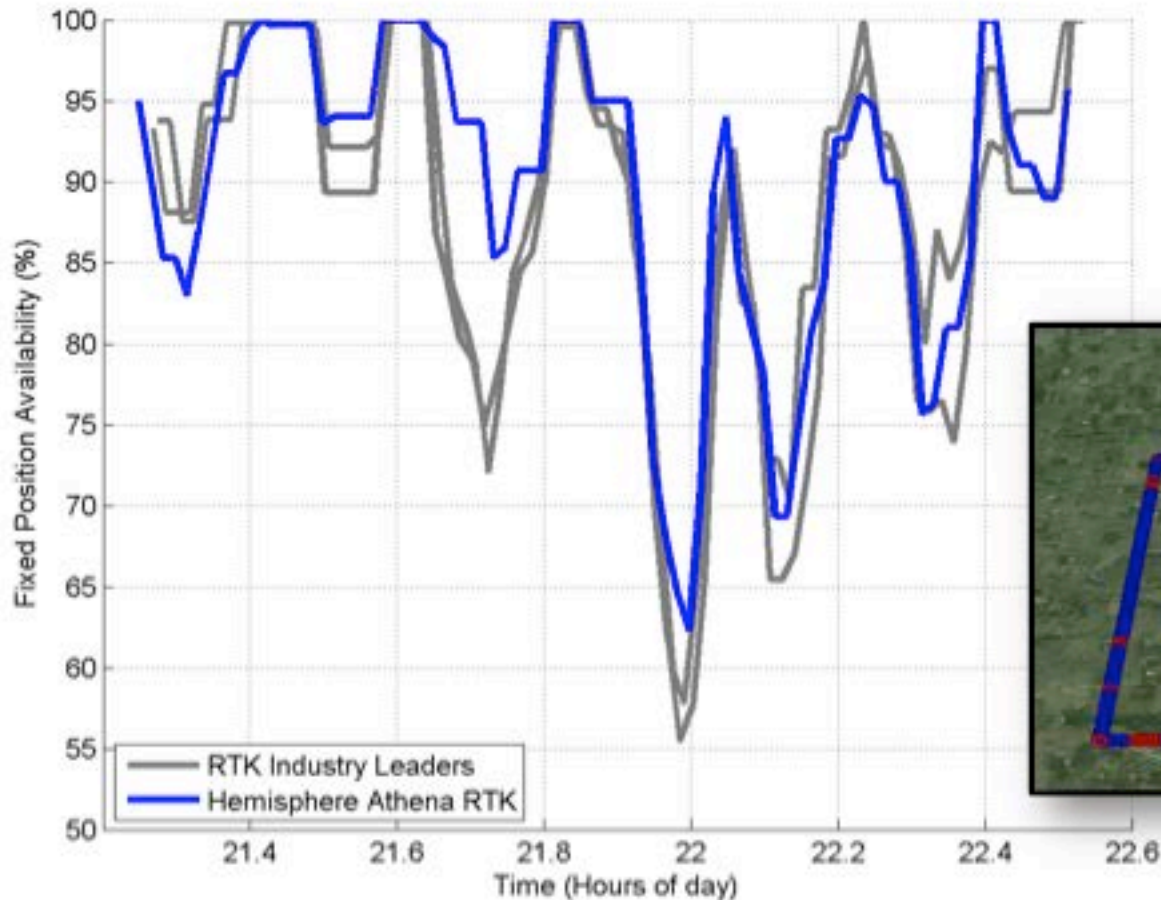


● RTK Fixed

○ RTK Float

● Other (SBAS, Autonomous)

Kinematic Availability



Kinematic Availability

Athena engine



RTK Industry Leaders

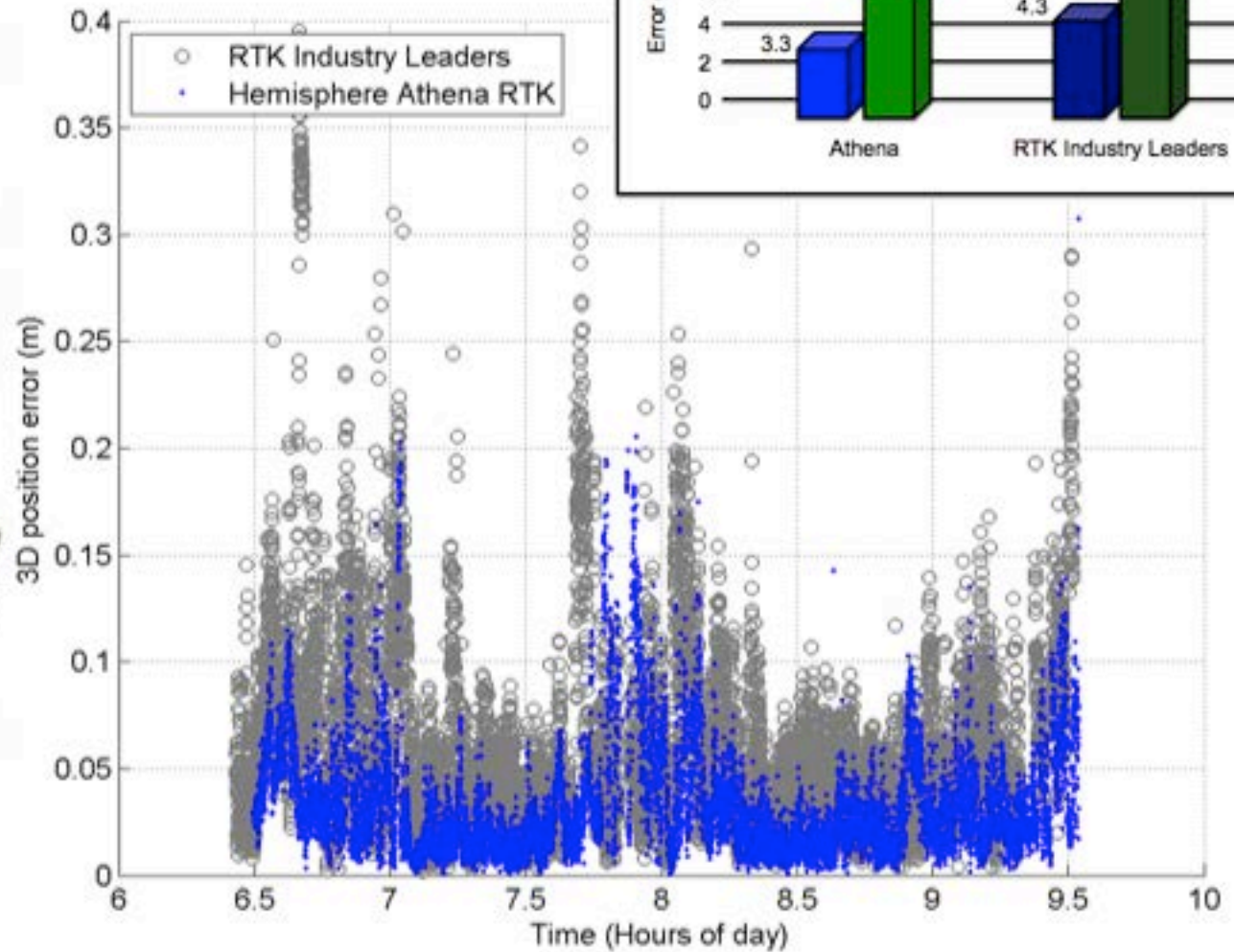


 RTK Fixed

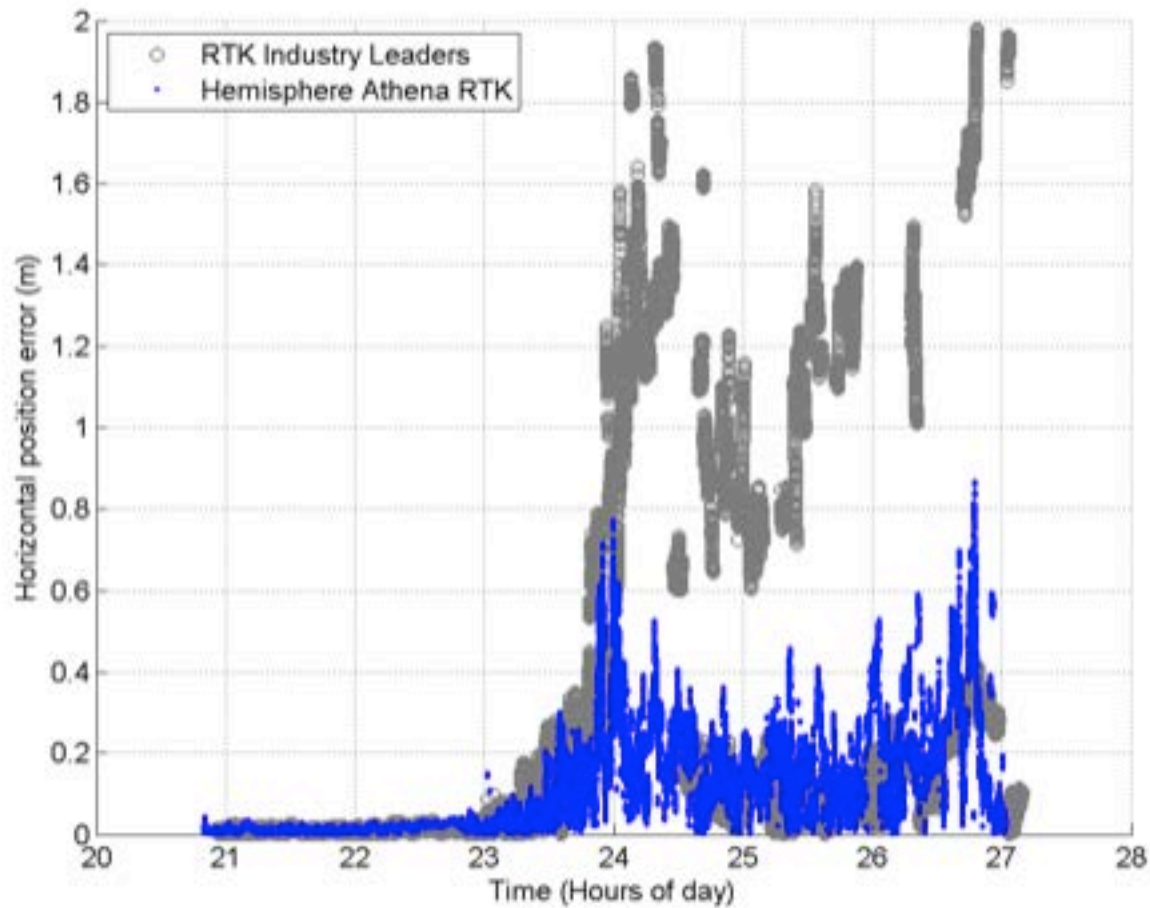
 RTK Float

 Other (SBAS, Autonomous)

Tree Canopy



Scintillation



Performance Summary

Horizontal position accuracy	1 cm + 1 ppm
Vertical position accuracy	2 cm + 2 ppm
GNSS constellations	GPS, GLONASS, BeiDou
Dual-frequency support	Yes
Network RTK support	Yes
Initialization time	Better than 15 seconds
Reliability	> 99.9 %
Scintillation	State-of-the-art performance
Canopy performance	Up to 50% better than leading systems
RTCM support	Yes
Compatibility with 3 rd party bases	Seamless (when RTCM is used)

Supported Hardware



AtlasLink



H320, H321



P302, P306, P307,
P320



V320



R330



A325



S320



VS330

The logo features a blue location pin icon with a white circle and an orange dot inside, positioned to the left of the text.

atlas

Support

What is Atlas™ about?

- A disruptive ***GNSS Global Correction Service***
- Addressing limitations imposed by all other Correction Service providers
- Enabling autonomous GNSS positioning with different levels of accuracy, beyond what SBAS's can provide
- Provides *Freedom* from immediate infra-structure needs
 - GNSS reference networks
 - Communication networks
- A true plug-and-play high accuracy GNSS solution
- In some cases, delivered for less than half the price of legacy solutions

What is Atlas?

Private label option



OR

Your Logo Here

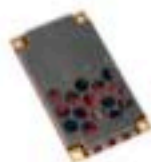
Enables Aggressive Pricing



All-components solution



Finished products



Boards



Software



Services

What is Atlas?

Multiple GNSS Constellations



GPS



GLONASS



Beidou



Galileo
(future versions)

Custom Specifications

