



# Predicting the Future of GNSS

## Smart Solutions from Leica Geosystems

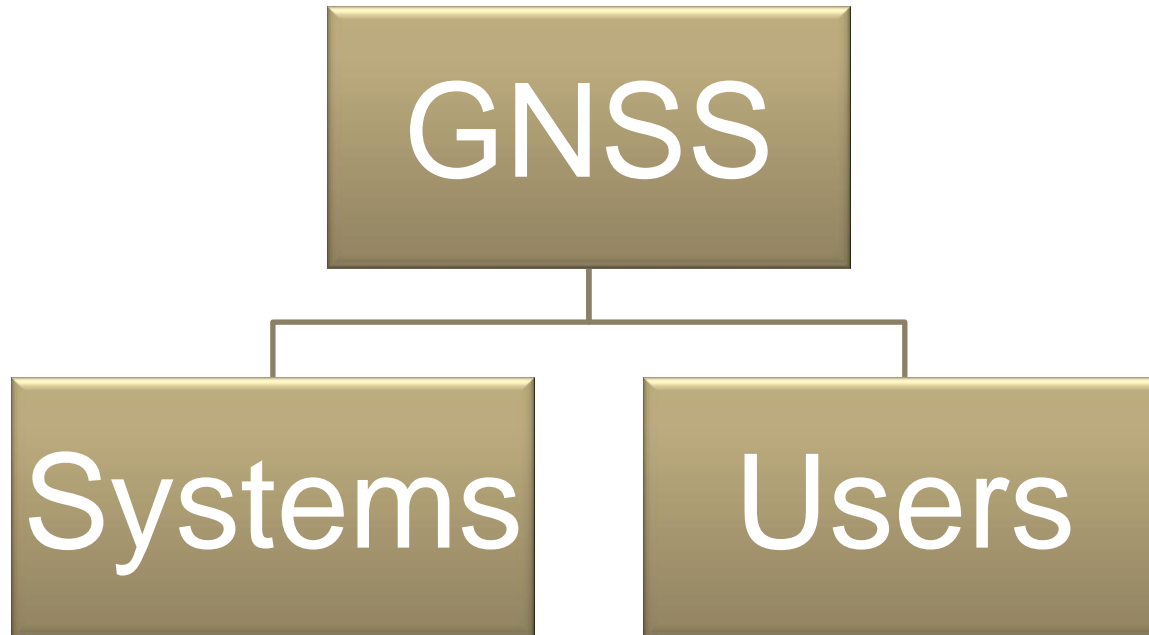
MundoGEO#Connect LatinAmerica 2013 | June 18 to 20 | São Paulo (SP) Brazil

Leica NRS Product Management  
Markus Roland

- when it has to be **right** 






# GNSS Future

## What is affected?



# Systems

## What Global Systems are available?

	GPS	
	GLONASS	
	Galileo	
	BeiDou	

# Systems

## What changes?

### More signals

- More satellites in view
- Triple-frequency

### More availability

- In urban canyons
- In forests

### More reliability

- Civil, Non-military systems

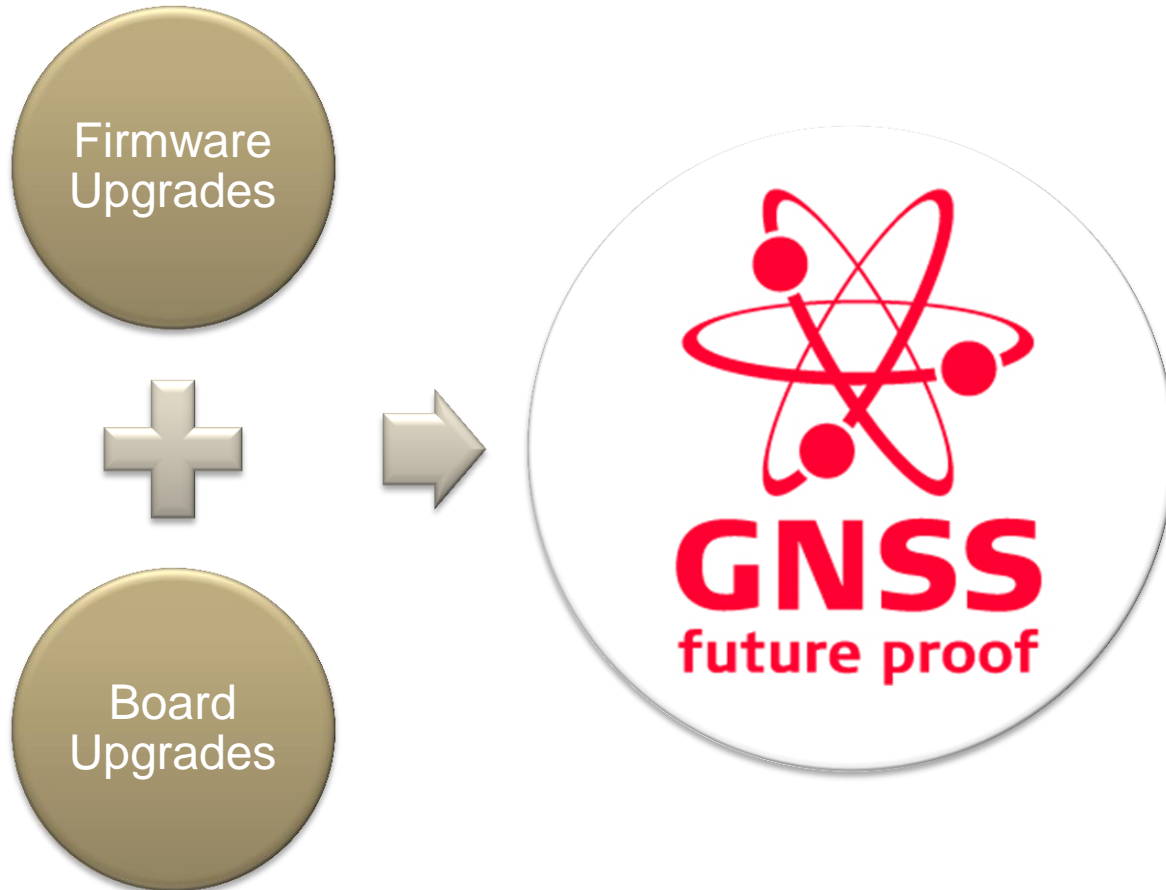
### Higher accuracy

- Thanks to better signals
- Especially for code solutions

# Systems

## Are you prepared?

With Leica you are prepared



# Users

## Who uses GNSS?

Geo-Science

Surveying & Mapping

Monitoring

Asset Collection

Agriculture

Machine Control

Logistics

Consumer



# Users

## What are the needs?





# Users

## What are the trends?







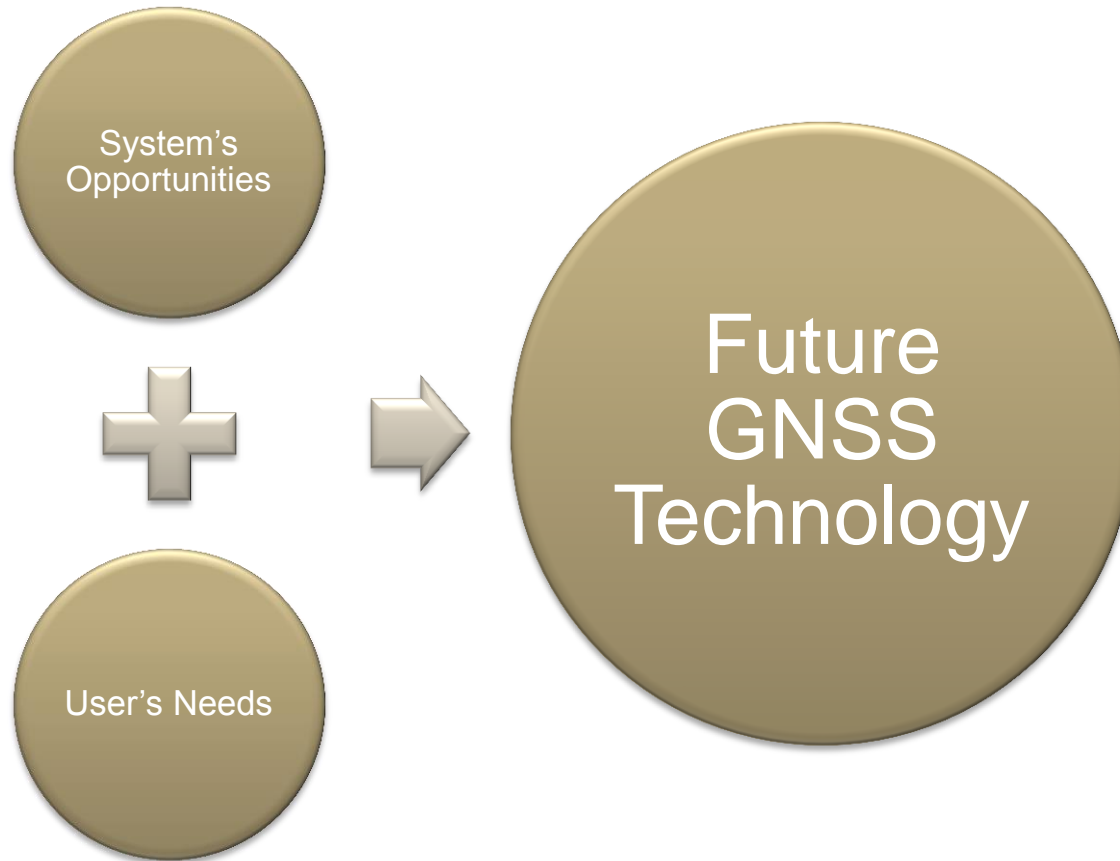
# Users

## Are you prepared?

**With Leica you are prepared: Hardware, Software and Services**



# Future Technologies



# Future Technologies

## What are the trends?

### Stand-Alone GNSS

- Will improve thanks to System Improvements

### Augmented GNSS

- SBAS Services
- Differential Network Services
- State Space Model Services
- Sensor Fusion

Services available in more Regions

Services become critical part of infrastructure (security, reliability)

Adaptation of Service Algorithms

Sensor Fusion and new Algorithms to improve Positioning Solution during Service Outages

# Leica Geosystems – GNSS Solutions

