eGPS RTN – History & Lessons Learned

GEORGIA
Lonnie Sears, PLS  (Leonidas B. Sears, III)

- Past President of the Survey and Mapping Society of Georgia (SAMSOG)
- Chairman of the Geospatial committee
- Serving on the education committee
- Surveying since 1981; licensed since 1993
- 1984 Graduate of West Virginia University Institute of Technology
- President of eGPS Solutions, Inc., Norcross, GA
- Licensed in GA, FL, AL, TN, NC, MS
- USMC 1977 – 1981 (Leatherneck, Devil-dog, Jar-head)
### Historic Timeline of eGPS

#### Our History

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<td>Launched eGPS as the 1st RTN in Georgia.</td>
<td>1st RTN to introduce Glonass RTN coverage in North America.</td>
<td>Completed statewide centimeter coverage of Georgia.</td>
<td>Completed statewide centimeter coverage of Florida.</td>
<td>Established the Ohio Agriculture RTN for SignalOne.</td>
<td>Mature Rental fleet of Champion GPS and Trimble Robots</td>
<td>Established the Houston, Texas Capital COOP RTN</td>
<td>Became a Leica Authorized Dealer</td>
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**eGPS Solutions**

Precision with Ease
Hard learned lessons

- All internet connections are not reliable
  - Cellular data latencies
  - Satellite data latencies
  - Small ISPs have issues

- Site selection is of paramount importance
  - Permanent is subjective
  - Relocation is expensive
  - NGS construction guidelines published
  - Site recon bracket type, wiring routes, IT, Power
  - Written site agreements
Hard Lessons Learned

Software providers change their focus
- Expensive maintenance agreements
- National network focus of Trimble, Leica, and Topcon
- New platforms equal new software purchases
- One constant is you never finish paying for the RTN software
- Your goals do not match each others

Correction Message Types are not understood
- RTCM 2.1, 2.3, 3.0, 3.1, 3.x
- CMR, CMR+, (Trimble Vs. world)
- Proprietary NCT, Leica, CMRX
Hard Lessons Learned

Remote control and reboot devices
- Saves travel costs
- Inexpensive compared to labor and travel
- Analog side of DSL is best to reset modem

CORS Maintenance Costs and Procedures
- Keep a replacement kit at the ready
- Lightning, wear, age, obsolesce
- Site changes (Trees, buildings, fences, ect...)
- Building abandonments
- Theft
- Inland Marine Insurance costs
- Cables and connectors LMR400
Hard Lessons Learned

Bandwidth utilization at the servers
- Buffer limits of ISP at their routers
- T1, to T2, to Ethernet (Fiber Optic)
- Server OS and Hardware maintenance
- Software and Hardware dongles (Licensing)
  - Hard to maintain redundancy due to licensing

RINEX file storage space
- epoch rate compounds size
- How long do you store it?
- CORS maintenance outages
Best Resources

**NGS** – Datum realizations and their differences
- Geoid separation files
- Educational materials for our customers, field procedure guidelines, OPUS, Tools.
- Absolute antenna calibrations

**RTN software providers**
- Specific application guides
- Experience
- Expertise
- Theory and Practice of RTN Tech
Best Resources

Conferences and Seminars
- ION
- RTN operators meetings hosted by NGS
- NGS Best Management Practices
- InterGeo

Customer or User feedback
- Static download availability
- Local RTN Outages
- Cellular Data outages and changes
- Atmospheric condition - correlation to models
- Data Collector software “Bugs”
Questions?