Sub-Foot GPS with Trimble H-Star technology

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GIS Trends

- Demand for High Accuracy Enterprise data
- Efficient Asset Management
- Increased Legislative requirements
- More Accurate positioning
- One user- Field to GIS

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What is H-Star

- Advanced GPS Receiver
- Sophisticated data logging capabilities
- Innovative post processing

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Three essentials of H-Star

1. Quality GPS data and equipment
2. PPA- driven workflow
3. H-Star Postprocessing

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1. Quality GPS data and equipment

- Receiver and Antenna are critical
  - Multipath
    - Right hand circular polarized (RHCP)
    - LHCP
    - Everest rejection
  - L1/L2 Zephyr

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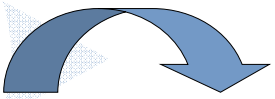
1. Quality GPS equipment



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2. PPA- driven workflow

- Predicted Postprocessed Accuracy
- Key to H-Star
- Antenna Type
- Confidence

- Satellite Geometry
- Duration of Lock
- Good Base stations available

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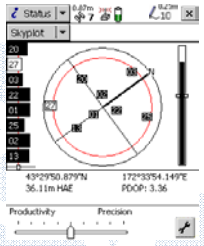
Field Software

TerraSync



GPScorrect for ArcPad

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H-Star satellite needs

- Continuous lock on minimum number satellites
- Four+ Static
- Five+ Dynamic
- Without interruption

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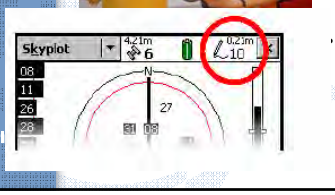
Data collection practices



- Log data until PPA reaches required accuracy
- If you want 20cm, remain at the feature until PPA shows 20cm
- If lock is lost, start over

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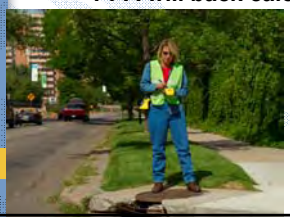
Maximize productivity

- Work in an open environment
- Collect series of features
- Keep satellite lock
- PPA will back calculate positions



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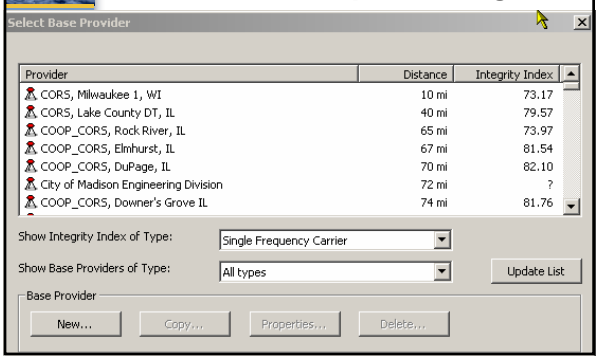
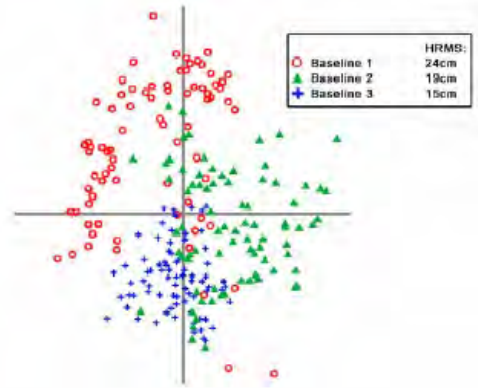
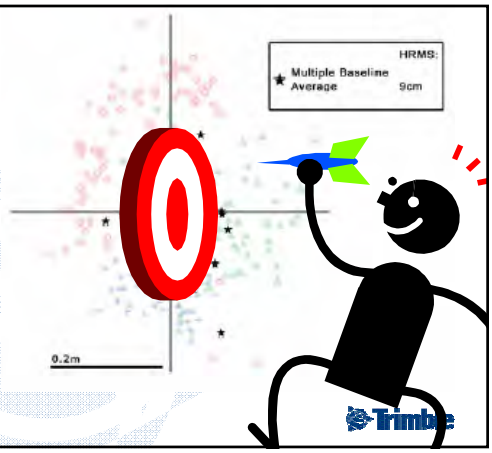
3. H-Star Postprocessing



Selecting Reference Stations

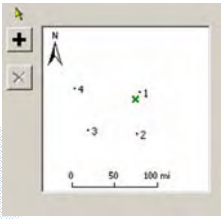
- Choose close to worksite
- Use of Averaging
- More is not always better
- Evenly distributed
- High Reference Station Integrity Index
  - Continuously recalculated
  - 0-100
  - Quality of data
  - Higher better
  - Bias, precision, reliability, baseline distance



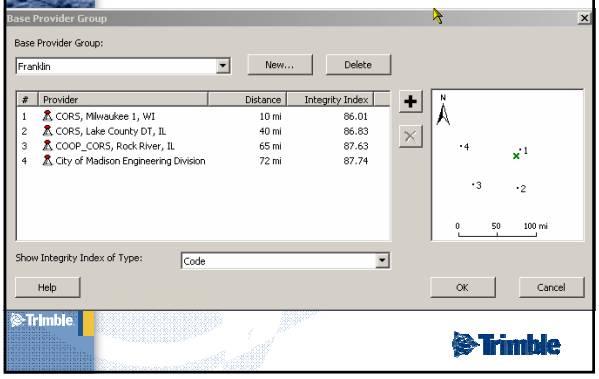


Optimal Results

- Three well distributed reference stations
- Single reliable reference station within 20 -30km



Selecting the right base/s



Coordinate Systems and Datums

- Don't mix and match
- Know your reference station
- North American Datum 1983 (1991 adjustment) NAD83(91)
- International Terrestrial Reference Frame 2000 (ITRF00)

Review

Three essentials of H-Star

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High Accuracy Alternatives

- H- Star GPS systems
  - Provides higher accuracy to meet demands
  - One user- Field to GIS
- Survey Grade GPS Systems
  - Centimeter accuracy
  - More accurate than any GIS collection tool
  - Real time answers
  - Costs more

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Demonstration

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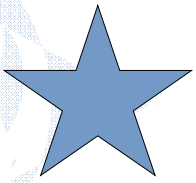
Conclusion

- Smart Field Software
  - TerraSync
  - ArcPad with GPScorrect
- Advanced post processing
  - Trimble Pathfinder Office
  - GPS Analyst extension for ArcGIS
- Short occupation times
  - 2 minutes of carrier lock
- More accurate data results
  - Sub-Foot Postprocessed

H-Star technology

- Advanced receiver design
- Sophisticated data logging
- Innovative Postprocessing
- Simple workflow



Thank You!