



Where Accuracy and Precision Take Flight



Quality control through WindServer™ gives your data flight by elevating the standards of accuracy and precision. GENIVAR aims for perfection. Our WindServer™ team provides a secure data vault that is web-based, feature rich, and delivers unparalleled data management. With WindServer™, accuracy and precision have no limitations.

## The Value of WindServer™

### INSIGHT

Having the proper insight into your meteorological towers will enable you to maximize the full value of your investment. The Asset Management functionality that is part of WindServer's™ fundamental design enables tracking of equipment throughout the entire life cycle of the tower. In addition to this, an extensive array of Reporting and Data Access features provides the insight you need into the wind data itself, transforming the raw data into valuable information.

### Asset Management

The WindServer™ configuration process follows a disciplined and rigorous metadata collection methodology. This metadata includes serial numbers, deployment dates, calibration values, mounting orientation details, logger and modem settings, etc. Storing all of this information in the WindServer™ system allows clients to access it anytime, anywhere. As well, the full life cycle of all equipment across all towers can be tracked.

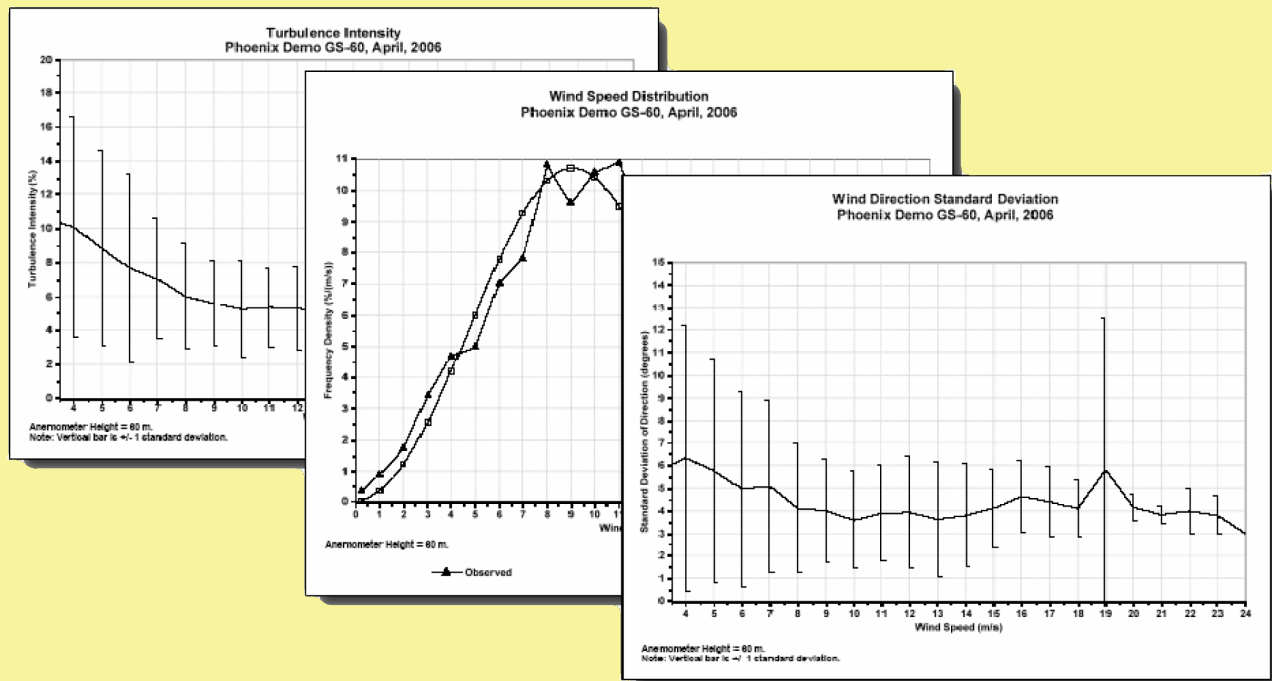
### Reporting

All tower data that is managed by WindServer™ is available in a series of online reports via the WindServer™ web interface. These reports capture everything from equipment information through to graphical data summaries of the measured on-site data.

### Data Access

All data loaded into WindServer™ are available to the user in two forms. The Data Export function provides access to a tower's WindServer™ validated data, allowing the client to download the same data sets that are used by GENIVAR's Wind Resource Assessment team, either in CSV or WAsP format. As well, all of the text files from the logger are available for download.





## INTEGRITY

Ensuring the integrity of meteorological tower data is crucial for enabling a bankable resource assessment. WindServer employs a rigorous set of quality assurance processes to detect data, and equipment issues sooner, rather than later, and is built on an extensive data security infrastructure to keep the data safe and secure.

### Weekly Quality Control

The Weekly Quality Control service provides a weekly report regarding the status of all sensors on all towers, including possible logger or data communication issues. WindServer™ technicians review the Data Summary reports for each tower, looking for flat-lined or automatically flagged data, missing data and extended periods of icing within the last week. The WindServer™ Tower Shadow report is also examined to identify suspected dragging anemometers. When anomalous data is discovered by the WindServer technicians, it is passed on to a WindServer™ engineer for a more detailed analysis to determine the nature of the issue. A weekly email is provided reporting all issues identified during the recent week for each tower. The weekly e-mails will continue after the enhancements although they will likely only contain links to online QC reports and summaries.

### Detailed Quality Control

The Detailed Quality Control service is a detailed analysis of a tower's data and configuration to ensure that any subsequent Wind Resource Assessments are conducted with only the most accurate and reliable data. The analysis spans the entire history of the tower, and includes: validating meta-data and configuration information, identifying data gaps, validating timestamps, calculating wind vane offset corrections, and flagging broken or underperforming sensors. Appropriate reference sites are also used as part of the analysis for correlation and comparisons.

### Data Security Infrastructure

Data stored on WindServer™ is safe and secure. The system architecture incorporates redundancy at many levels to ensure that the system is up and available and no data loss occurs even in the event of a hardware failure or disaster. Data is stored on RAID arrays, and is mirrored to standby servers at remote location. Backups are taken at regular intervals and are stored at a secure off-site location.

Online access to the data and reports is managed with a flexible and secure user access management system. This prevents unauthorized users from accessing the proprietary information stored in WindServer™. Additionally, it provides the ability to allow other users access to specific towers, which is useful in due diligence and partnership situations. Once your data is in WindServer™, you can rest assured that it will be safe and available.