An Historical Hourly Climate Database and its Value-Added Resource Potential

Beth L. Hall¹, Michael Timlin¹, Leslie Stoecker¹, Greg McCurdy²,

¹Midwestern Regional Climate Center - U of Illinois,
²Western Regional Climate Center, Desert Research Institute,
Stakeholder Demand

- **Atmospheric moisture climatology**
  - *Dew point temperature*
  - *Relative humidity*

- **Winds**
  - *Speed*
  - *Direction*
  - *Gusts*

- **Derived**
  - *Wind chill*
  - *Heat Index*
What Most RCCs have

- Existing hourly data at MRCC
  - *Climate Reference Network (CRN)*
  - *METAR*
  - *QCLCD*

- *Available in cli-MATE (MRCC Application Tools Environment)*

- *Stored on internal SQL database*
Motivation
Motivation
Challenge

- Internal (MRCC) storage inconsistencies across RCCs
- Clunky for custom tool development
- Complicated metadata
  - Sub-hourly
  - Changing over time (e.g., winds, moisture)
- Proprietary datasets
Opportunity

- Existing hourly at WRCC
  - *Missing data for recent years***
  - *Organized by data networks*
    - Federal
    - State
    - Local
    - Research
    - Proprietary
  - *Password protection option*
  - *Multiple value-added tools developed*
  - *Simple design*

- Plan to integrate web service calls

- Solution: MRCC & WRCC team up = synched hourly database with WS potential
Progress so far...

- MRCC backfilled missing hourly data
- Servers set up at MRCC & WRCC to synchronize data
- Data lister developed to access historical data from database
  - Password protection setup for proprietary datasets
By Fall 2016

- Wind rose interface
- Advancement to the MRCC ReMAPP (Regional Mesoscale Application Partners Project) and MMC (Midwest Mesonet Consortium) online program
- Integration with MRCC VIP hourly products (duration of freeze events; chilling hours)
By Fall 2016
By Fall 2016
By Fall 2016
By Fall 2016
Over next 1-2 years

• Climatology interfaces
  • *Dew point*
  • *Heat index*
  • *Wind chill*
  • *Wind roses*

• Time series, graphing

• Custom mapping
Over next 1-2 years
Over next 1-2 years
Conclusion

**Demand for ...**

- More value-added tools dependent upon hourly data
- Synchronized network of databases
- Better access for hourly data via RCCs, Web Services

**Through RCC Partnerships ..**

- It can happen!