A national Surface Energy Budget Network (SEBN) will provide the foundation to improve NOAA climate models and assessments, weather forecasts, reanalysis, NASA and NOAA satellite products, significantly aiding the National Environmental Satellite Data and Information Service (NESDIS), the National Weather Service (NWS), and the general atmospheric science research community.

### Why do we need collocated surface radiation budget and energy flux measurements?

**Surface net radiation over the U.S. increased systematically by 12 Wm$^{-2}$ from 1996 to 2011, but the 8-m air temperature was flat**

**Where did the increased surface energy go?**

Collocated heat flux and radiation measurements would have helped to answer that question.

### A Surface Energy Budget Network will:

- Help develop and improve Subseasonal to Seasonal (S2S) predictive capabilities
- Identify and reduce biases from data collected by other existing observing systems that were designed for purposes other than climate
- Provide focused reference and benchmark observations for satellite estimates of surface radiation and model predictions of the SEB
- Directly measure the effects of increasing greenhouse gases at the surface
- Extend and maintain a consistent long-term climate record
- Improve quality and quantity of climate observations, analyses, and interpretation
- Help form a physical basis as to why climate changes are occurring
- Fulfill NOAA’s existing commitments to major international programs
- Provide climatologically diverse surface radiation measurements for renewable energy research

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