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The new Aerosol Observing System (E13) at SGP Opens the Door for Advanced Instrumentation

Stephen R. Springston and Scott Smith from Brookhaven National Laboratory

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Engineering for Ease of Use

The new AOS design accommodates 5 full-height instrument racks (1 more than the previous generation) each independently suspended by cable shock isolators. Instruments in the new AOSes are easily accessible on slide out shelves. A ‘clean’ installation minimizes removal of instruments for maintenance and repair, lessening data disruptions and instrument downtime. A walk-up stair, deck and railing improves safety for Operators.

The new AOS is installed with a ‘prairie’ entryway featured after the ANP’s Oklahoma site. This configuration helps to mitigate the temperature variations that the AOSes experience when Operators enter or leave. The entryway also serves as the sheltered home for the blower enclosure holding the pumps and other mechanical systems servicing the AOS instruments. Since the entryway is also climate controlled it provides extra workspace for the SGP Operators.

Each structure has its own HVAC system that operates independently. This has led to an increase in the stability of the temperatures in the AOS. The addition of a single, large Uninterruptible Power Supply, 108kVA, buffers all instruments from power surges AND makes short interruptions inconsequential. This has led to less operator intervention, fewer hard instrument shutdowns and more complete datasets. The Prairie entryway has electrical service and opening for the expansion of a future mobile lab. This is the second AOS, AMF3 was first, to replace many instrument computers with a virtual computing system. This system allows for centralized updates, synchronized backups and a more robust computing architecture.

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