Milagro Magic Paint:

Does it Work?

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Milagro trailers had a temperature problem ...

- Milagro electronics trailers were over heating in intense NM sunshine
- Solution was to paint with ASTEC ceramic finish #900

Will **Milagro** magic paint work for Auger?

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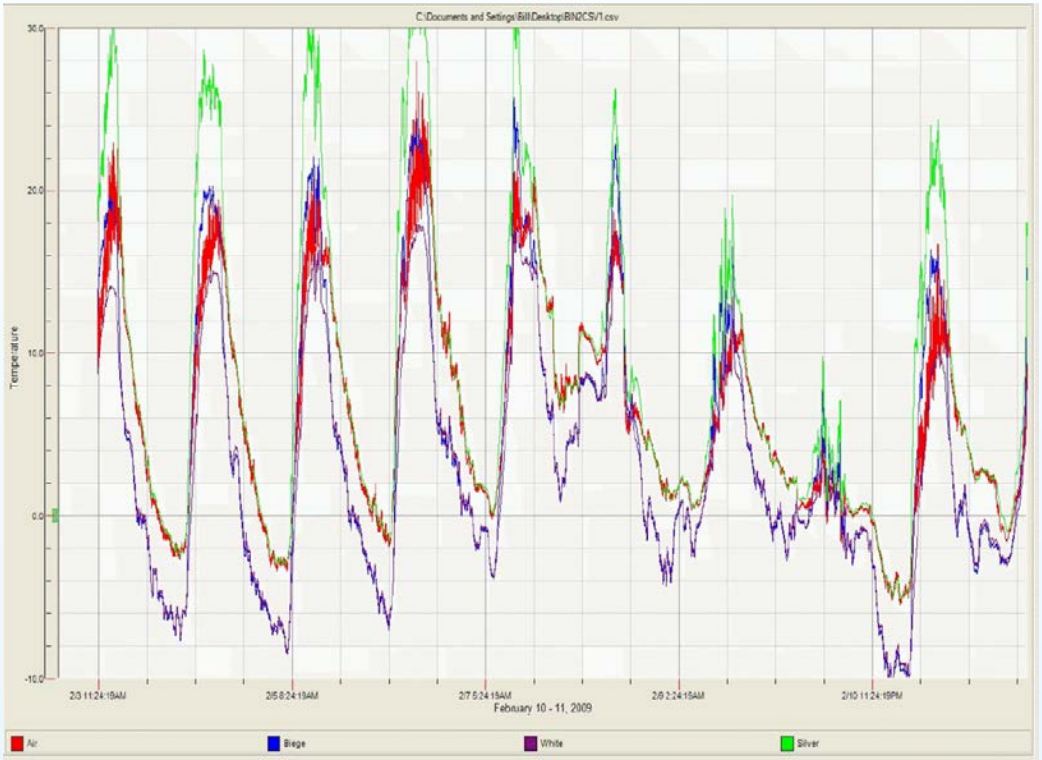
- Fermilab sent us 3 Auger South electronics *domes*
- One was unpainted, one was painted with *White* and one with *Beach* ASTEC paint
- Each dome has two temperature sensors ...
- We also monitor the air temperature and solar radiance

The base of each **Auger** *dome* is the same ...

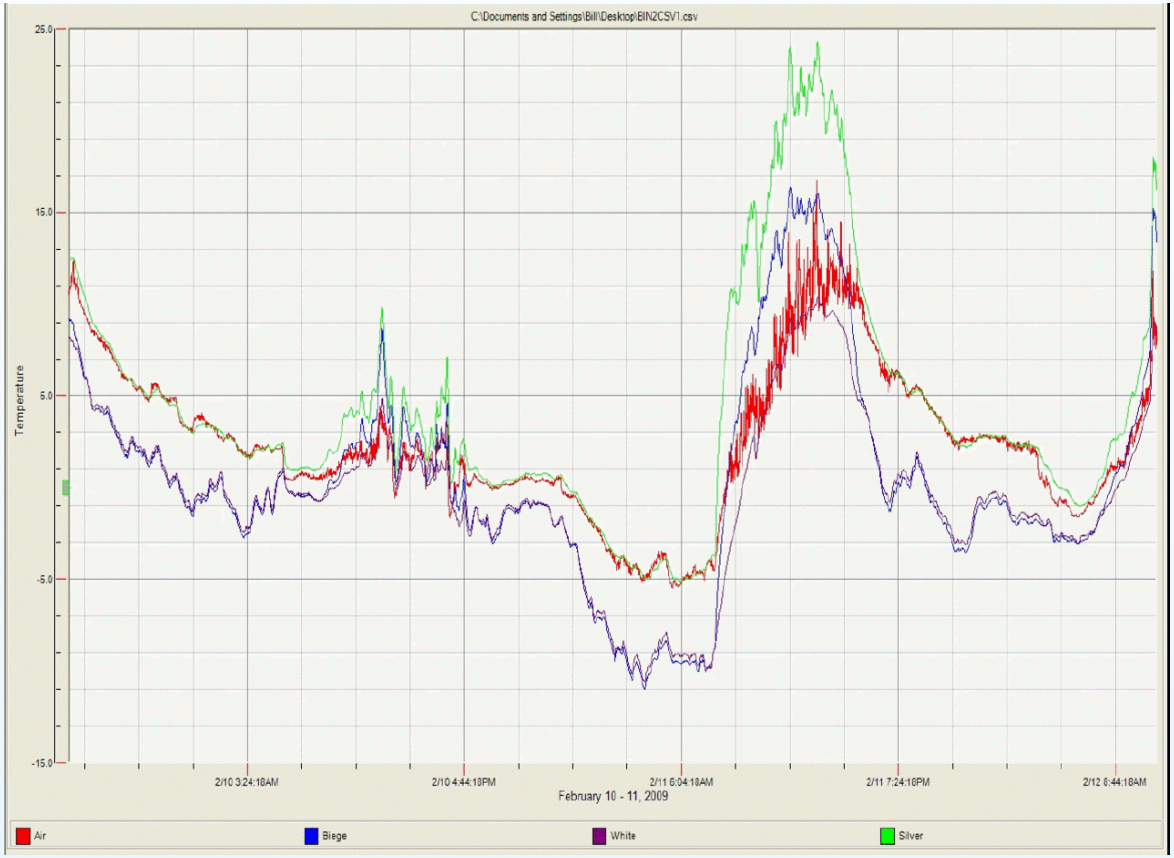
- Each *dome* was plugged (on the bottom surface) the same way:
  1. 3/4” plywood ... exterior surface painted with *White* ASTEC paint
  2. 2” thick, R13, foam insulation
  3. (2) temperature probes mounted ~ 1” above the insulation

What do we observe? **(I)**



- The unpainted *dome* is hotter than air-temperature during sunshine and the same as air-temperature during the night
- The *Beach dome* is about the same as air-temperature during sunshine but **cooler** than air-temperature during the night
- The *White dome* is **cooler** than air-temperature both during sunshine and during the night

What do we observe? **(II)**



- A possible model for what is going on with the painted *domes*:
  1. *White* surface absorbs less sunlight and is **cooler** than *Beach* in sunshine
  2. *Magic* paint makes any *magic* painted surface a very good black body at IR wavelengths ... *i.e.* an inverse greenhouse effect

My first... **impressions!**

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- IF the goal is to minimize the daily temperature variations *under the dome* the *magic* ASTEC paint does not do this!
- The *magic* ASTEC paint does appear to make the surfaces excellent black body radiators ...
- If someone can think how we can benefit from this feature ... please let me know!