The most common assumption is that there is very little to no corrosion in cold environments. However, previous studies in the Antarctic and Arctic regions have shown significant corrosion damage when exposed to cold conditions. Two important factors affecting atmospheric corrosion rates in cold arctic and sub-arctic conditions are aerosol chlorides (or salt-laden snow from the marine environment or deicing salts on roads) and time of wetness (TOW) along with other climatic parameters like rainfall, temperature, humidity. Atmospheric corrosion damage in cold environments is close to the main human activity, which is concentrated near the coastal areas. A combination of urbanization and proximity to marine environments make arctic and sub-arctic regions in North America, particularly Alaska, an important natural laboratory to study atmospheric corrosion in cold regions, for a renewed better understanding of the atmospheric corrosion mechanisms. This will lead to good choice of materials and better design practices for infrastructure and other applications. Pilot modular and adjustable corrosion test racks were designed and installed on top of UAA’s Engineering and Computation Building, and effects of impacts on corrosion of the angle of exposure will also be discussed.

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