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Vitamin D is a pro-hormone that is activated by ultraviolet B (UVB) radiation through direct exposure to the skin. Vitamin D plays a large role in calcium and phosphorus absorption in the small intestines, directly influencing blood-calcium homeostasis and skeletal health. Individuals who do not receive enough UVB radiation do not have adequate blood calcium levels leading to a cascade of metabolic deficiencies and health problems, including bone diseases like rickets and osteomalacia. Many biocultural variables may affect vitamin D exposure. For this presentation I will explore how weather and geographic location affect the likelihood of individuals living in the past being vitamin D deficient. I analyzed twelve states above and twelve states below the Mason-Dixon Line which were settled during the 19th century. To examine historic weather data I extracted average temperature, UV index, and zenith angle data by year, season, and state. Data were analyzed using ANOVA and PCA. Preliminary results show weather data significantly varies by northern and southern state, which may indicate that state of residence can directly impact vitamin D status.