Performing Monitoring and Air Studies with In-cave Weather Stations

Henry Schneiker
HDS Systems
Tucson, Arizona

Abstract

Understanding the cave environment entails gaining an understanding of air flows within the cave environment, including mechanisms that set the air in motion, the transport of heat, the transport of moisture, and the interactions of the cave air with the outside air. To achieve a detailed understanding, it is necessary to accurately measure small changes in temperature, humidity, slow air flows, and changes in pressure. This data needs to be collected in sufficient detail to build an accurate model that can predict. Uses of this data include monitoring cave systems for changes as well as aids to exploration. A network of very accurate data collection systems is discussed that can collect the necessary data over extended periods. These stations are designed to support long term studies that can last for decades.