



Fig. 14.1 Environmental monitoring station being installed in the antechamber in Cave 85.

Environmental Conditions

An environmental investigation was undertaken to determine the interior microclimatic conditions of Cave 85, including the surface and subsurface of wall paintings in order to understand the role that moisture has played in the ongoing deterioration of the paintings and sculpture. Hygrometric analyses of salt mixtures as well as wall plasters in Caves 85 and 98 (which have similar deterioration) determined the conditions necessary for the prevention of deterioration of the wall paintings in these caves and similar caves at the site. Research and analysis were carried out to investigate possible sources of moisture, in both liquid and vapor form, through monitoring of the environment in bedrock and long-term monitoring of cave microclimatic conditions (fig. 14.1). Further study was also undertaken on the potential impact of visitation and the influence of the site climate on the microclimate of the caves. Moisture through Bedrock The Daquan River runs south to north through the site and today is situated approximately 160 m from the cliff face. The riverbed maintains a small stream throughout the year, though

in summer months it can be nearly dry. The river floods on rare occasions; the last reported floods that overflowed the channel were in 1979 and in June 2011. However, with flood control measures now implemented, water does not reach the caves and is instead diverted away from the site. Flooding is therefore no longer considered a potential source of liquid moisture in the caves and elsewhere.