

Palmer LTER Schoolyard Supplement Request - 16 July 1998 Raymond C. Smith, PI 1.0 Introduction This proposal is a supplement to the original LTER PAL proposal (Smith et al., 1996). Consequently, the scientific details, hypotheses and goals articulated in that document are not reiterated here. This supplemental proposal requests funds to interact with several local schools to stimulate the development of schoolyard LTERs. Since our Antarctic site is so distant it is not practical to involve students in making observations directly relevant to our Southern Hemisphere research. Rather, we propose to interact with local schools and teachers, to encourage them to carry out local observations of interest and relevance to local circumstances, and to emphasize data base development and linkages to our PAL web site to emphasize the importance of long term data and development of databases.

2.0 Approach Our approach will be to interface with schools in communities where Palmer LTER PIs live (e.g. San Diego, Santa Barbara) and are already involved with local education as parents or mentors. Potential school sites include Dos Pueblos High School (Goleta), Santa Barbara Middle School, San Diego University City Cluster Schools and Poway District Schools. The intent is to explore with each school the feasibility of a unit that includes both classroom presentations and on site field measurements. Prototypes would explore how schoolyard sites can assume the responsibility of measuring meteorological and/or hydrologic parameters that contribute to an existing national program. The time required to interface between an academic research arena and a K-12 educational site will be significant. As a result a significant portion of these initial funds will be oriented toward creating an effective interface in terms of both personnel and actual communication methods. Appropriate part-time personnel such as a university student(s) and an education writer/editor will be identified to coordinate with the Palmer LTER program and to interface with several K-12 schools interested in including a unit on long-term research within their curriculum. Although there will be a focus on online and WWW communications, details will depend upon the technological development of each school. We plan to take this opportunity to develop an educational aspect to the existing Palmer LTER website that is relevant to schoolyard LTERs. This educational focus could be expanded with other proposals such as informal education supplement proposals. PIs and students will interface with the science teachers in these schools and, in consultation with these teachers, establish necessary supplies and materials to set up locally (for each school) relevant long term observations. Two suggestions have already been made. If there is local interest on a unit focused specifically on the Antarctic, the Palmer LTER will explore introduction of existing Antarctic online materials to compliment presentation of Palmer LTER materials, particularly those contributed to by Palmer LTER PIs. Examples are the Blue Ice project (<http://www.onlineclass.com/BI/blueice.html>) and the Live From Antarctica 2 project (<http://quest.arc.nasa.gov/antarctica/index.html>). Alternatively, or in addition, the focus could be local. For example, wildfire is a critical issue in the foothills of Santa Barbara. Santa Barbara Middle School (SBMS) teachers have expressed an interest in weather and how it influences local fire potential. In this project, students could establish long term weather observations in conjunction with a near by fire station. These data can include the usual meteorological observations (air temperature, humidity, precipitation, wind speed, etc.) as well as more complex observations on the water content of local vegetation. Local fire authorities make these observations and we would work to involve students and set up long term data base management for these school observations.

3.0 Expected Significance The significance of this effort will be seen at several levels. (1) K-12 students will be involved in making long term observations, and learn to think in the context of observations made over periods of years to decades. In learning to "plant a seed" of observations and nurture these observations so that they eventually bear fruit as useful scientific results, the students will experience first hand the importance of long term research. (2) Teachers will also be involved in this process in order to provide continuity over time and will benefit by being involved in "doing science". They will also be exposed to the value of long term research. (3) With the help of university students, we will provide a valuable interface between the K-12 community and the university community. The university students will work with PIs and teachers to make data base management and computer linkage a reality.

4.0 Budget and Budget Justification An important fraction of the budget will pay for undergraduates and/or graduate students who will work with our data base manager (Karen Baker) to make a "student link" to the Palmer LTER and to introduce the GLOBE database system (<http://www.globe.gov/>). This provides the opportunity to archive data into an existing system making this a hands-on field experience as well as a hands-on data handling experience presented and facilitated by personnel from a long-term research site. This is an important aspect of our schoolyard proposal since we will need to create an effective and communicative interface between our PIs and the local teachers and students. The remainder of the budget will be used to provide materials and supplies required for local observations, establishing (when they don't already exist) modems for internet links, teacher workshops etc.