

Other ways of extracting meaningful information relating to post-glacial rebound could include averaging first over longitude for certain increments of latitude.

## 2.4 RESEARCH NEEDS

In general, improvements in our understanding of eustatic sea level change can come about through use of the existing data base or development of new data. Extraction of more meaningful results from the existing data base will require either more powerful analysis procedures or an improved understanding and application of the physics of relative sea level change, including the noise present in the records. Enhancement of the existing data base through new measurements will most likely occur through satellite altimetry once this is proven to centimeter accuracy over the open ocean. Additionally, in some cases much can be learned locally about anthropogenically generated compaction in areas of tide gages through the installation of rather simple compaction measurement devices. One feature of new data is the length of time that will be required for such data to "mature" to yield significant meaningful information.

### 2.4.1 Use of Existing Data

Analysis in light of the physics of RSL change appears to be the most effective and productive use of existing data. In particular, accounting for the contribution of long period waves as explored by Sturges (1987) would allow interpretation and removal of a major portion of the noise in the RSL measurements.

A second productive area is a more thorough analysis than presented previously of the contribution of post-glacial adjustment of the earth following the last ice age. As noted previously, Lambeck and Nakiboglu (1984) have inferred from viscous models of the earth that the actual eustatic rise is roughly one-half to two-thirds the value determined from analysis of records based only on areas of relative stability. Improved estimates of eustatic sea level rise could be based on either a more inclusive data set with or without the use of a viscous earth model. Obviously more meaningful results could be obtained with the combined approaches simultaneously. The approach envisioned here is in general the same as applied in "physical