Chery, NRC).

The best summary of the current situation is probably that extrapolations beyond the historical record are difficult except in those few (site-specific) situations where good regional data and a good local site model allow defensable analyses. In any event, extrapolations to values of F_F in the range, say, about 0.001/year are highly uncertain.

3) Dam Failures: To determine F_F for dam failures, it is necessary to analyze the contingent likelihood, given various rare and threatening events, that the dam would "fail", and thereby produce a PMF-sized flood or greater at the site being considered.

It is also important for the analyst to remember that severe local precipitation can add to the flooding level from a dam failure. This issue must be accounted for in the flooding analysis.

There seems to be no single generally accepted methodology for analyzing the frequency F_F of a dam failure that would produce a PMF-sized flood at a downstream reactor site. Such an analysis must be entirely dam-specific (meaning river-specific also), and depends on dam construction, spillway design capability, conditions of the reservoir and embankments, and other such factors. Realistic calculations of the dam failure probability of a specific dam as a function of extreme conditions are difficult to find in the literature; bounding calculations are more common, and would be fully acceptable if based on defensibly conservative models and data. Some bounding calculations provide values of F_F that are quoted as being in the range of 10^{-6}/year or even smaller, especially for modern well-engineered dams [Ref. 5.7 Oconee PRA, 1984]. On the other hand, some dam failures could easily be in the range of about $F_F = 10^{-3}$/year, since the mean value of the data base for F_F for all dams is in the range between 10^{-4} and 10^{-5} year (according to a survey published in the Oconee PRA [Ref. 5.7, Oconee PRA,1984]).

4) Ocean (Coastal and Estuarine) Flooding: We will discuss here the approaches to analyzing F_F for coastal and estuarine sites whose grade elevation is sufficiently close to sea level that there is no easy way to dismiss these effects convincingly.

At such coastal and estuarine sites, the principal causes of extreme flooding are storm surge and wave run-up action, arising from a combination of tropical storms (hurricanes, etc.), extreme tides, and high local rainfall that can inundate a site. At a few sites, it is also important to consider seiche phenomena --- wind-excited or seismic-excited waves occurring at the natural resonant frequency of the water body, so that the resonance results in amplified effects.

As is true for other flooding phenomena, it is important for the analyst to remember that severe local precipitation can add to the flooding level. This issue must be accounted for in the flooding analysis.