Atmospheric Deposition of Phosphorus: Issues and Recommendations Presentation to TOC, 4/23/02

Garth Redfield, Environmental Monitoring and Assessment Department
South Florida Water Management District,
West Palm Beach, FL

Monitoring P Deposition

- Deposition Monitoring in South Florida
  - Networks and researchers use common Aerochem wet/dry bucket samplers
  - Bahram Charkhian will describe
- Purpose
  - Assess P inputs from the atmosphere for mass budgets, modeling and P threshold determination

Background on P Deposition

- Wet Deposition, P in rainfall
  - FAMS data of Pollman et al.
    - 5 mcg/L or 7.5 mg/m2/yr
  - District data of Ahn and James
    - 10.6 mcg/L or 14.3 mg/m2/yr
- Wet is probably < 20% of Total
  - All wet/dry data sets are weak
  - Most P deposition will come from dustfall of particles > 10 um

Dry Atmospheric P Deposition

- Dry P Deposition, dustfall
  - Conveyed by particles > 2.5 um
- Difficult to Measure
  - Buckets just do not work for dry deposition
    - Contamination, geometry, calibration
- No Simple Solution
  - Contract offered TOC an intensive study

Total P Deposition Rates from the Literature

- **Most long-term information is as annual bulk precipitation**
  - **Range <5 to 200 mg P m2 / yr**
  - **Remote or coastal areas 10 to 20 mg**
  - **Mixed Land Uses 20 to 50 mg**
  - **Urban or Agricultural 50 to 100 mg**

District Recommendation to TOC

- Discontinue all District supported monitoring of atmospheric P deposition in the EPA for wet or dry components.
  - The certainty of rate estimates will not be improved with additional data from existing monitoring methods.