An Early Look at COQUALMO at JPL

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Acknowledgements

• JPL Software Quality Improvement Project
• JPL Costing Office
• NASA Independent Project Assessment Office
Projects

• Four Past JPL Software Projects
• Includes Flight and Ground Software
• Data Collection
  – Model Inputs
    • Historical Data
    • Interviews with Project Personnel
  – Actual Defects
    • Various JPL Defect Tracking Systems / Databases
    • Clarification Verification with Project Personnel as needed
Results

% of Defects per Category

[Diagram showing the percentage of defects in different stages (Req, Dsgn, Code) for each project (A, B, C, D).]
Results

Error Rates by Category

![Bar Chart]

- **Req**: 800.00%
- **Dsgn**: 200.00%
- **Code**: 100.00%
Implication of Preliminary Results

• Under the assumption that the current trends continue to hold over a larger number of data sets
  
  – Prediction correlations and discrepancies remain consistent despite vastly different projects including Ground and Flight software projects
  – Data shows promise for systematic JPL calibration
  – Persistence in the percentage of errors in each category will allow for prediction of late phase defect rates from early phase experience
Summary

• Current data analysis show promise for JPL local calibration
  – Defect profile correlations consistent across differing projects
  – Defect prediction correlations consistent across differing projects

• Future commitment to a JPL adaptation of the COQUALMO model remains strong

• Increased data collection efforts for FY03

• Formal local calibration attempt planned by end of FY03