



**TECOLOTE
RESEARCH, INC.**
Bridging Engineering and Economics
Since 1973

Joint Analysis of Cost and Schedule (JACS)

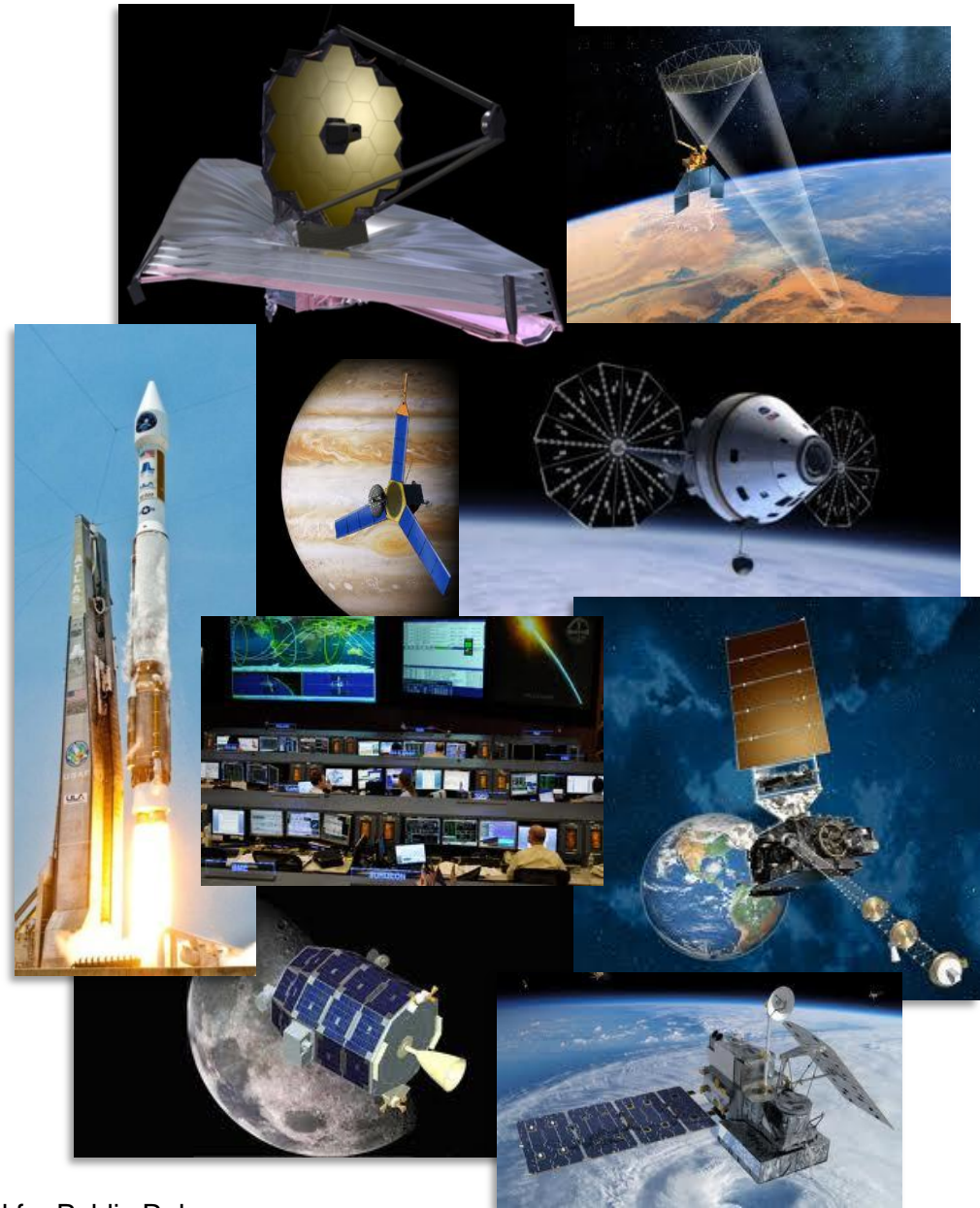
2012 SCEA/ISPA Joint Annual Conference & Training Workshop

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June 26-29, 2012

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Outline/Agenda

- What is JACS?
- What Insight and Advanced Programmatic Analysis can JACS provide?
- How is JACS put together?
- What are other considerations?
- Summary



JACS Provides Insight and Advanced Programmatic Analysis

- **JACS gives you insight into key program management questions**
 - Does the program have funds to complete the work by the target date?
 - What is the likelihood of completing the work by the target date?
 - What can be done to increase the likelihood of on-time completion?
 - If the program target date slips, what is the potential cost overrun?
 - Most importantly, what adjustments are needed now?

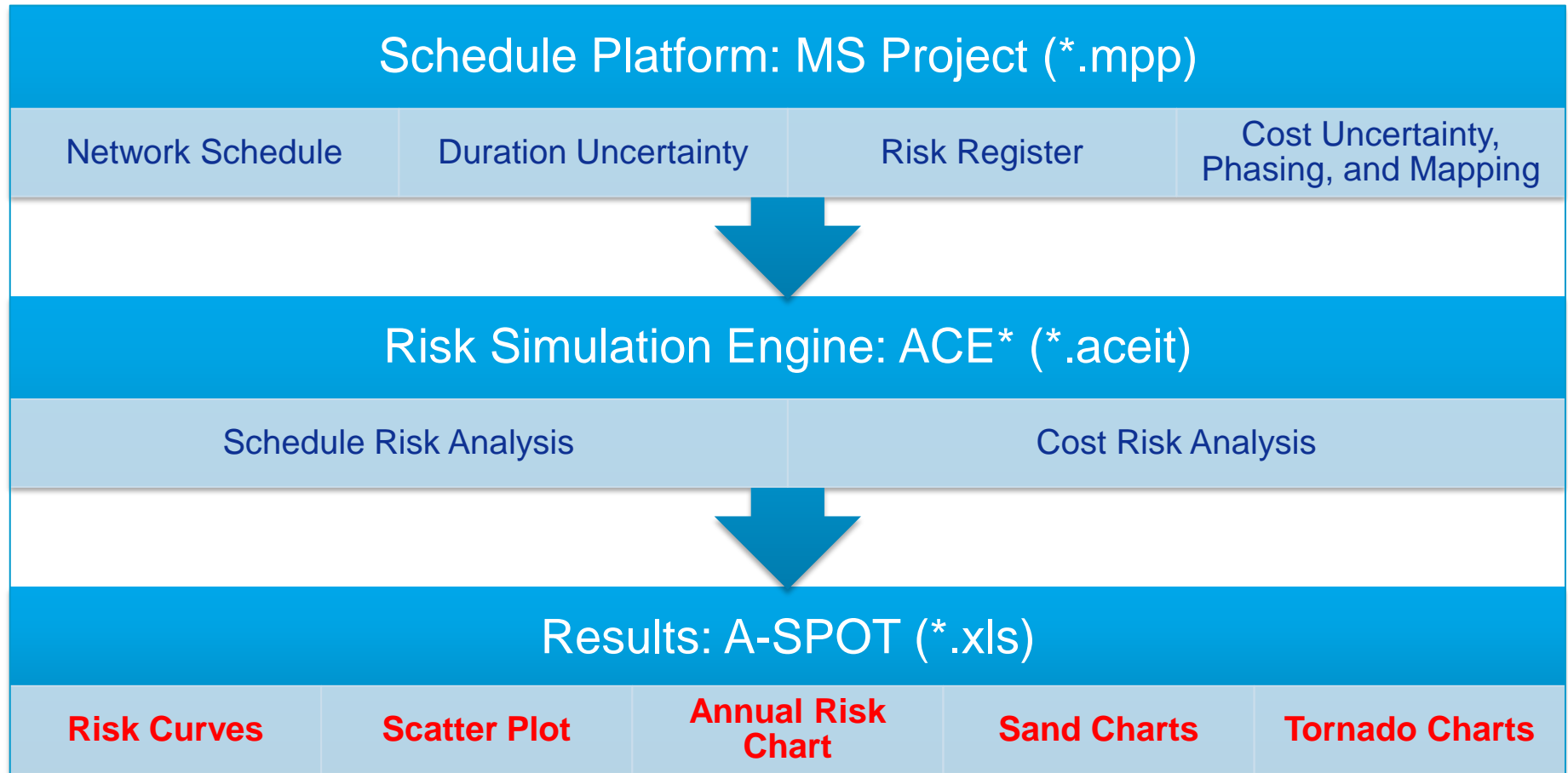
- **JACS will let you do advanced programmatic analysis**
 - Conduct What-If Analyses...Uncertainties on/off, Risk on/off, inflation factors, and Deterministic Scenarios,
 - Bring in equations for Durations and/or Costs...SERs, CERs
 - Import Costs from External Tools, e.g., Price, NAFCOM, SEER

- **Fully support NPR 7120.5E JCL requirements**

- **Available now via NASA government ACEIT license**



How is JACS put together?



- Uses schedules built within MS-Project
- In the background, auto-creates ACE files and uses ACE engine for stochastic analysis
- Activates ACEIT Scatter Plot Observation Tool (A-SPOT) for reports

*Technology runs in background and invisible to user

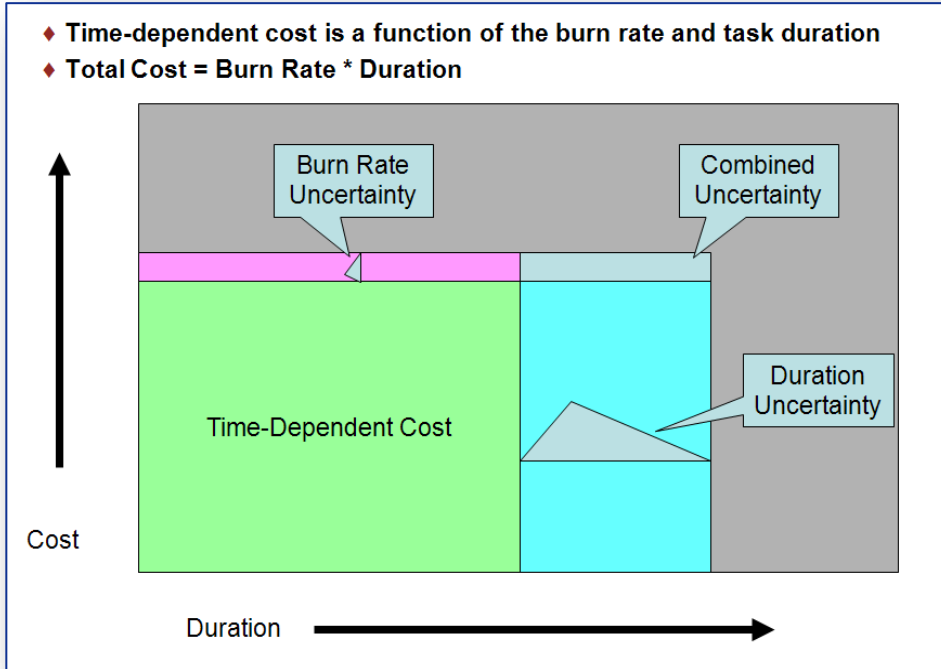


JACS...some foundational concepts

- **Time Independent (TI) & Time Dependent (TD)**
 - Surrounding uncertainties
 - Distinct behaviors of TI and TD
- **Separation of uncertainty from Discrete Risks**
- **Risk quantification and mapping it into the overall JACS framework**
- **What data goes into JACS for it to run?**
 - Schedule
 - Cost
 - Risk

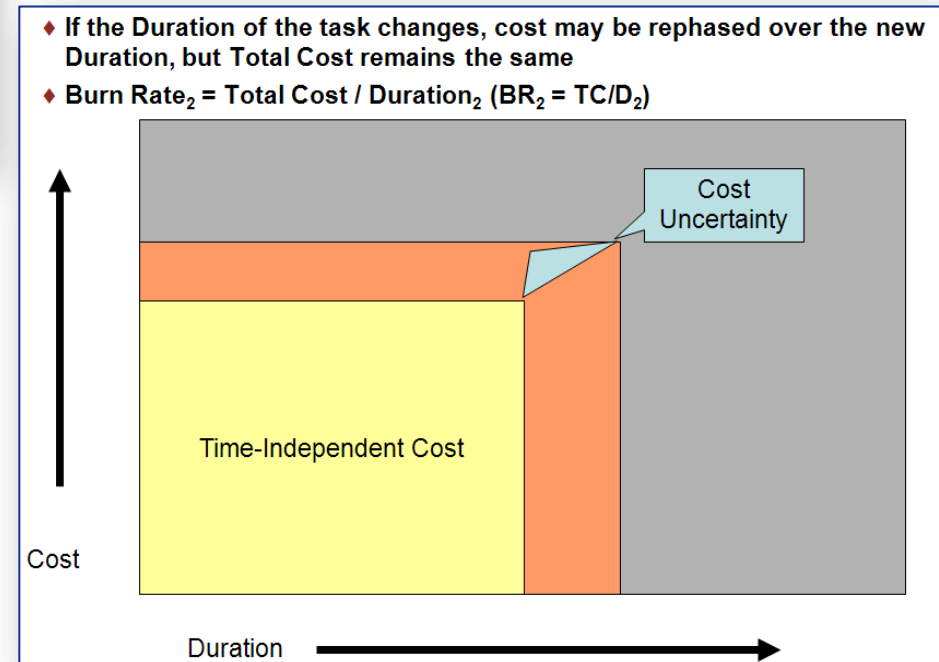


Two Separate Cost Behaviors



**Time-Dependent (TD)
[LOE]**

**Time-Independent (TI)
[End-Item Related Effort]**

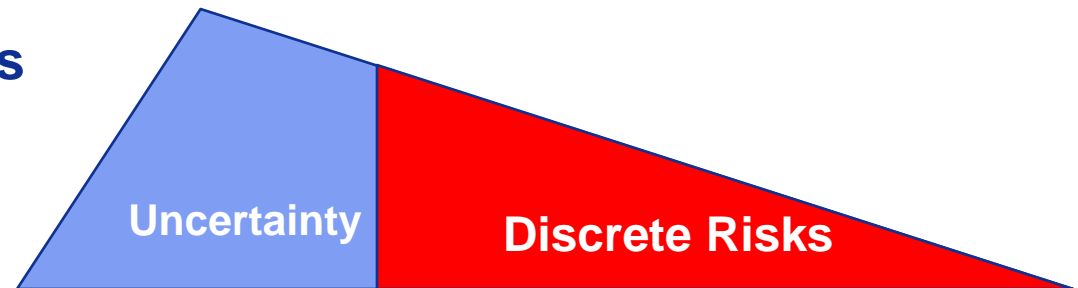


Uncertainty and Discrete Risks

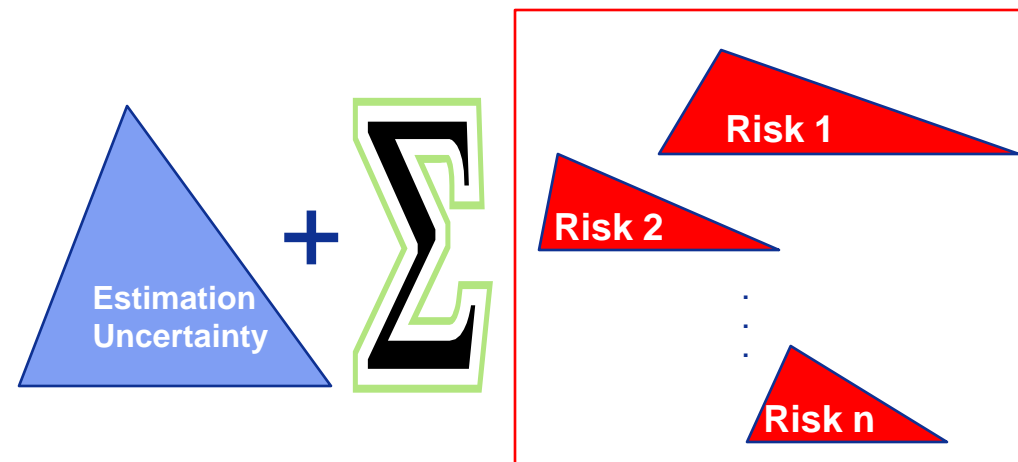
- High/Low bounds: a mixture of Uncertainty and Discrete Risks



- JACS separates Uncertainties and Risk



- Modeling via Probabilistic Simulation to determine overall distribution of shape/ bounds



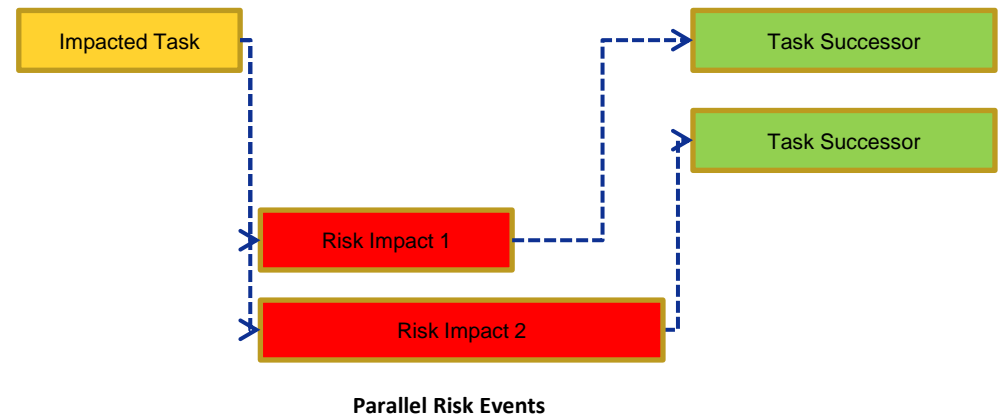
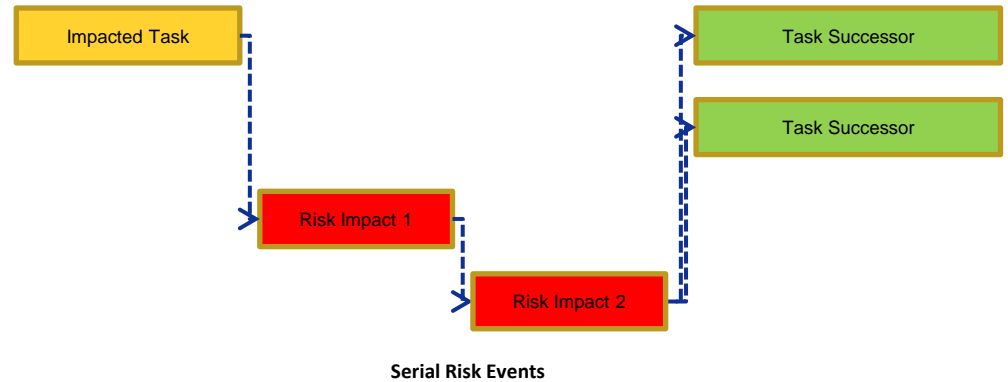
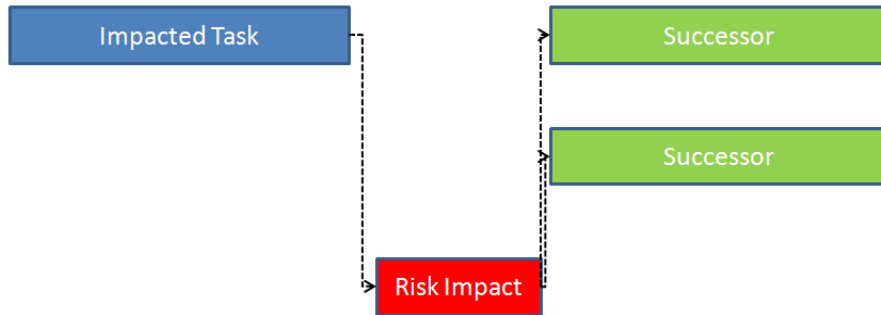
Potential Risks Included Probabilistically

■ Risks are Quantified

- Likelihood (Probability of Occurrence)
- Impact of Risk Realization

■ Risks are mapped to individual tasks

- Threats are mapped to tasks
- Modeled as probabilistic events that when active incur the associated cost and schedule impact



JACS Input?

■ Schedule

- Work effort (activities) with durations to meet target deliverables milestones (includes funded work, e.g., funded risk mitigation activities)
- **Uncertainty** to meet planned duration
- Linkage between work efforts – dependencies internally and externally
- Incorporation of **discrete risk** impacts into the schedule network

■ Risks

- Identification of events that will cause a technical/cost/schedule impacts
- Quantification of events in terms of schedule, technical, and cost impacts
- Identification of impacted schedule activities if risk event occurs

■ Cost

- Cost to accomplish scope of identified work activities
- Mapping of WBS costs into high-level schedule activities
- **Uncertainty** associated with costing of required resources



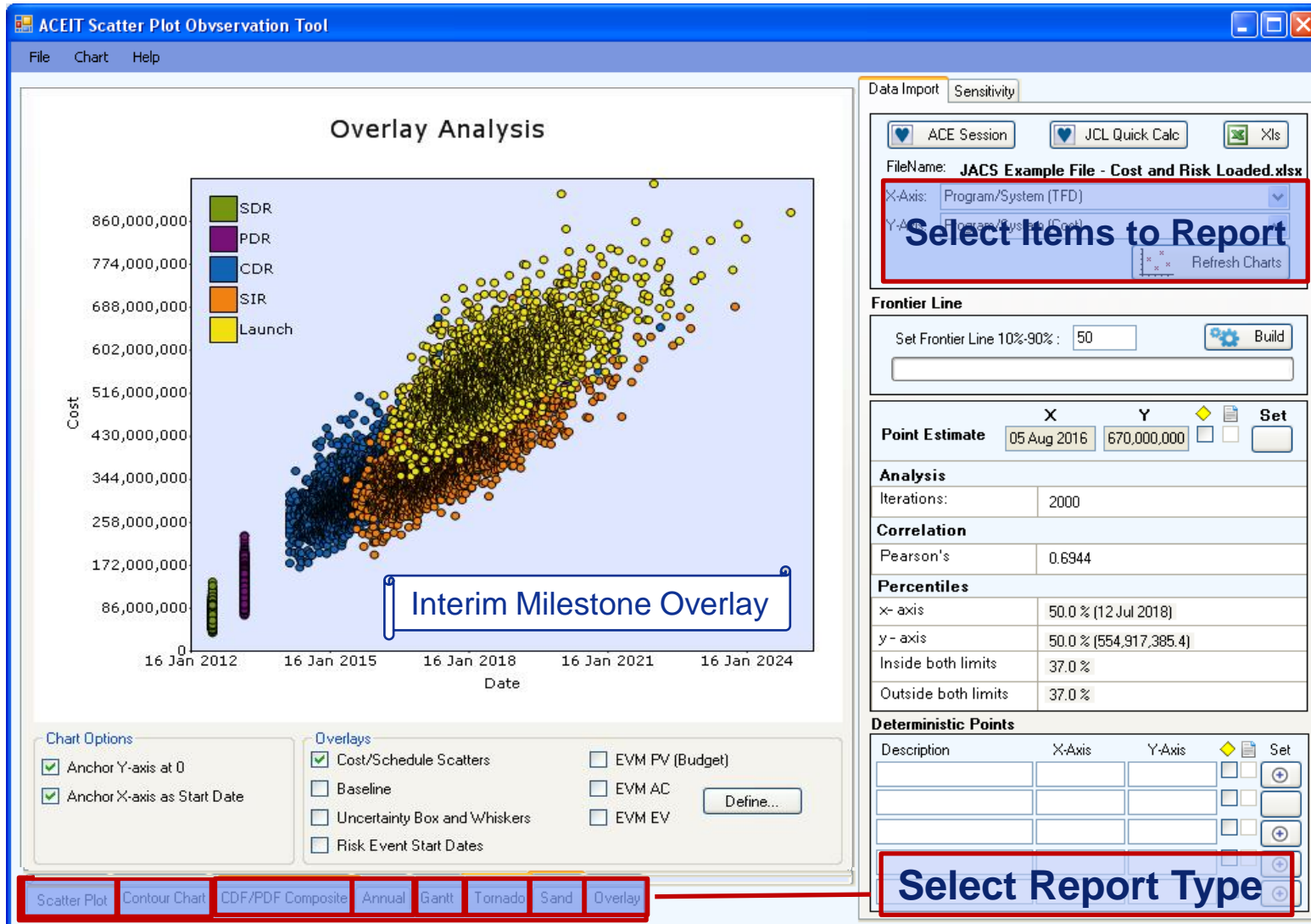
JACS is User Friendly

- All functionality accessed via a toolbar within MS-Project
- Data directly entered/edited/stored within a MS-Project File
- Intuitive user interfaces to enter/edit data



View Results

JACS provides a single interface to view results



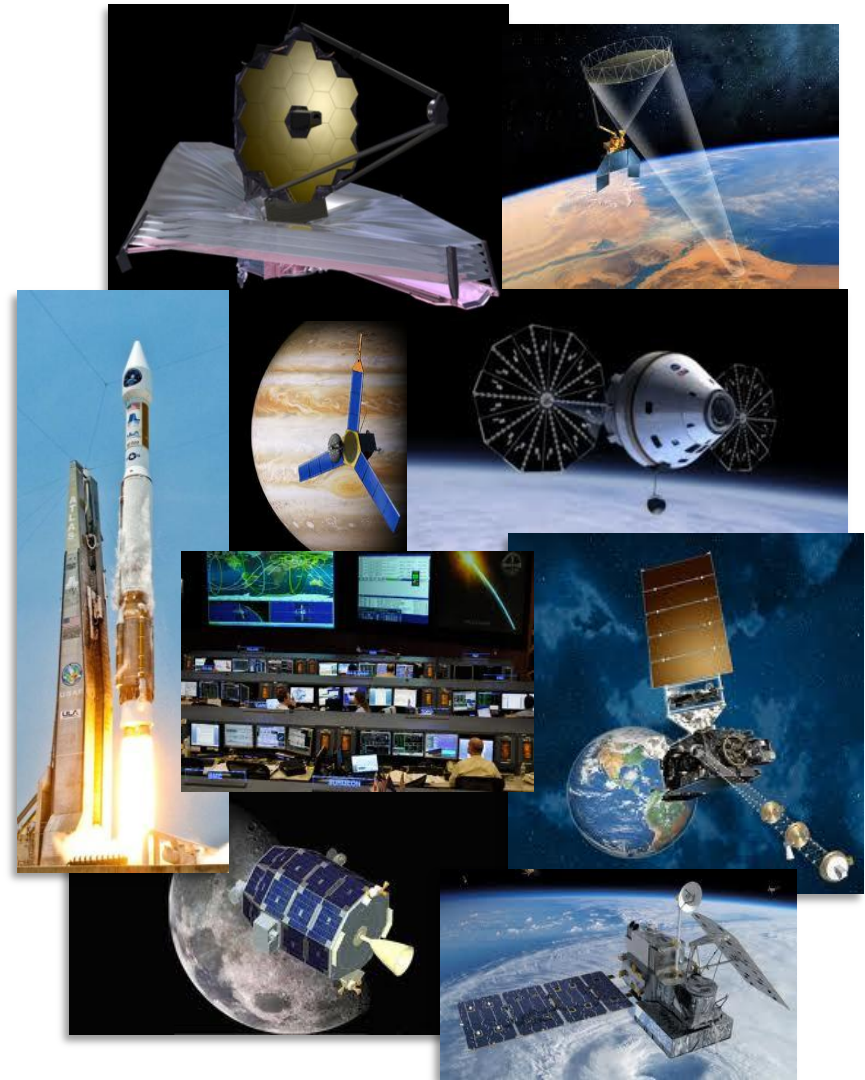
Other Considerations

- **“1-day” training session...as a minimum**
- **Data (cost/schedule/risk) is critical—and PM’s involvement is important**
- **JACS is part of ACEIT suite available now to NASA**
- **JACS provide additional utility to provide data/information for program success**



SUMMARY

- **What is JACS?**
 - Cost Loaded Schedule Model
 - Integrates Risk
- **Insight and Advanced Programmatic Analysis**
 - Captures uncertainty
 - Answers JCL requirements
- **Extremely user friendly**
 - MS Project Add-in
 - No need to learn new s/w
- **Available now**



Thank You





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BACKUPS