

**ECS**  
**Evaluation Packages**  
**EP6 Objectives Review**  
**Naveen Hota**

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**June 20, 1995**

# Agenda

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- **Introduction of Participants and Roles**
- **EP Overview**
- **EP6 Events & Schedules**
- **EP Overall Plan**
- **Lessons Learned from EP4 and PW1**
- **Science Scenarios**
- **EP6 Prototypes and Incremental Development**
- **EP6 Testing and Integration**

# **EP6 Objectives Review Briefing Team**

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**Naveen Hota, EP6 Coordinator**

**Karl Cox, ECS Science Team**

**Kevin Limepros, Rel B Client Subsystem**

**Jerry hung, Rel A Interoperability / Advertising Subsystem**

**Sridhar Muppala, Rel B Data Management Subsystem**

**Evelyn Nakamura, Rel A Data Server Subsystem**

**Naveen Hota, Rel A CSMS Subsystem**

**Jan Poston, EP6 Evaluation**

# EP6 Participants

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- **Tire Kickers**

**Peter Evans / Bob Evans (U of Miami)**

**Cheryl Craig / Paul Bailey (NCAR)**

**Sundar Christoper / Ron Welch / Manuel Penaloza (EDC)**

**Nigel Hinds / Tony England (U of Mich)**

**Dave Emmitt / Sid Wood (U of VA)**

**Liz Smith (LaRC)**

**Bill Emery / Dan Baldwin (U of CO)**

**Dave Glover / Mike Caruso / Glenn Shirtliff (Woods Hole)**

**Chris Justice / Wayne Higgins / Ricky Rood (GSFC)**

**Simon Hook (JPL)**

**Steve Greco**

**Nazmi El Saleous**

**Menas Kafados**

# EP6 Participants (Contd')

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- **DAACs**

- ECS liaisons (point of contact) for DAAC involvement**

- Ellen Chilkas / Ruth Duerr (ASF)**

- John Daucsavage / Tom Kalvelage (EDC)**

- Danny Hardin / Marilyn Drewry (MSFC)**

- Vickie Ng (ORNL)**

- ?????? (CIESIN)**

- Carolyn Whitaker / Dan Ziskin (GSFC)**

- Dan Chrisman / Jeff Cleveland (LaRC)**

- Marilyn Kaminski / Chris McNeave (NSIDC)**

- Don Merritt (JPL)**

- **EP6 Evaluation**

- Tirekickers**

- ECS Science Team as Users**

- ECS DAAC Liaisons / DAAC Ops Staff / ECS Opts Staff (Including User Services)**

# EP Overview

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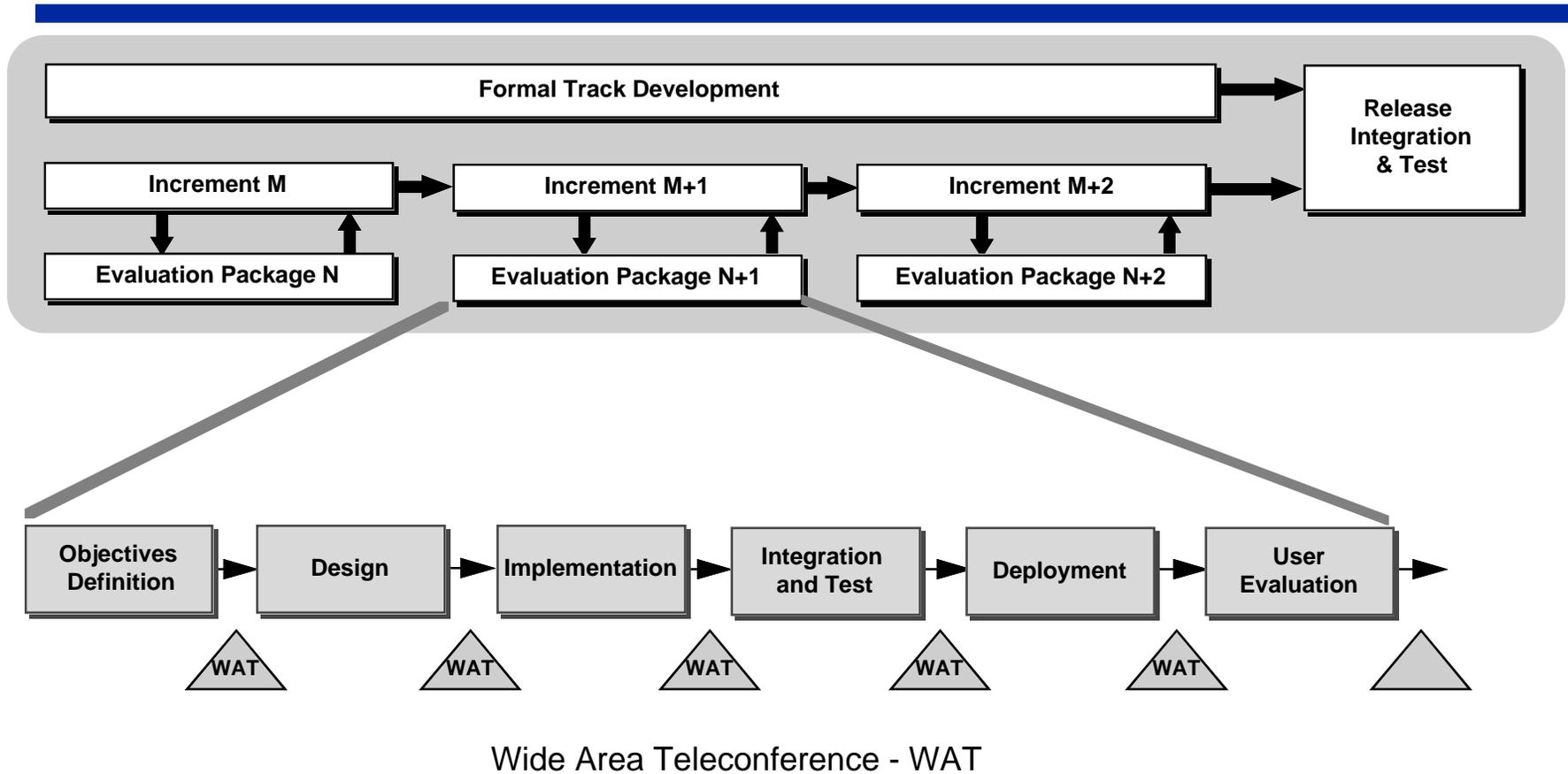
- **EP Goal**
  - **Implement Critical Portions of ECS Functionality for**
    - **Requirements Evolution for User Access**
    - **Refinement of Requirements**
    - **Validation of the Design**
    - **Early Testing of COTS**
    - **Iteration of User Interfaces**
    - **Incorporation of End User / Tirekicker Comments**
    - **Propagate Lessons Learned**

# EP components

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- **Incremental**
  - **Implement Customer Identified Critical Parts of the Formal Releases**
  - **Developed to Standards**
    - **Design Inspections, Code Inspections, Testing, Software Development Files**
  - **Integrated into Releases**
- **Prototype**
  - **Assess New Technology and Ideas for the Purpose of Trading Design Issues**

# Evaluation Package Life Cycle



# User Involvement

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- **EP Reviews: Wide Area Teleconferences with**
  - **ESDIS**
  - **DAACs, Hosted by ECS DAAC Liaisons**
  - **Science Advisors/Tirekickers**
  - **ECS Operations Staff**
- **Ongoing ECS Science Office Participation**
  - **Scenario Definition for Objectives Planning**
  - **Identification of Data Sets used in Evaluation**
  - **Detailed Science Script for Evaluation**
  - **ECS Science Team as Users for Testing**
- **EP Evaluation Mechanisms**
  - **On-line User Survey and Free Text Comments**
  - **Usability Testing**

# EP Events & Schedules

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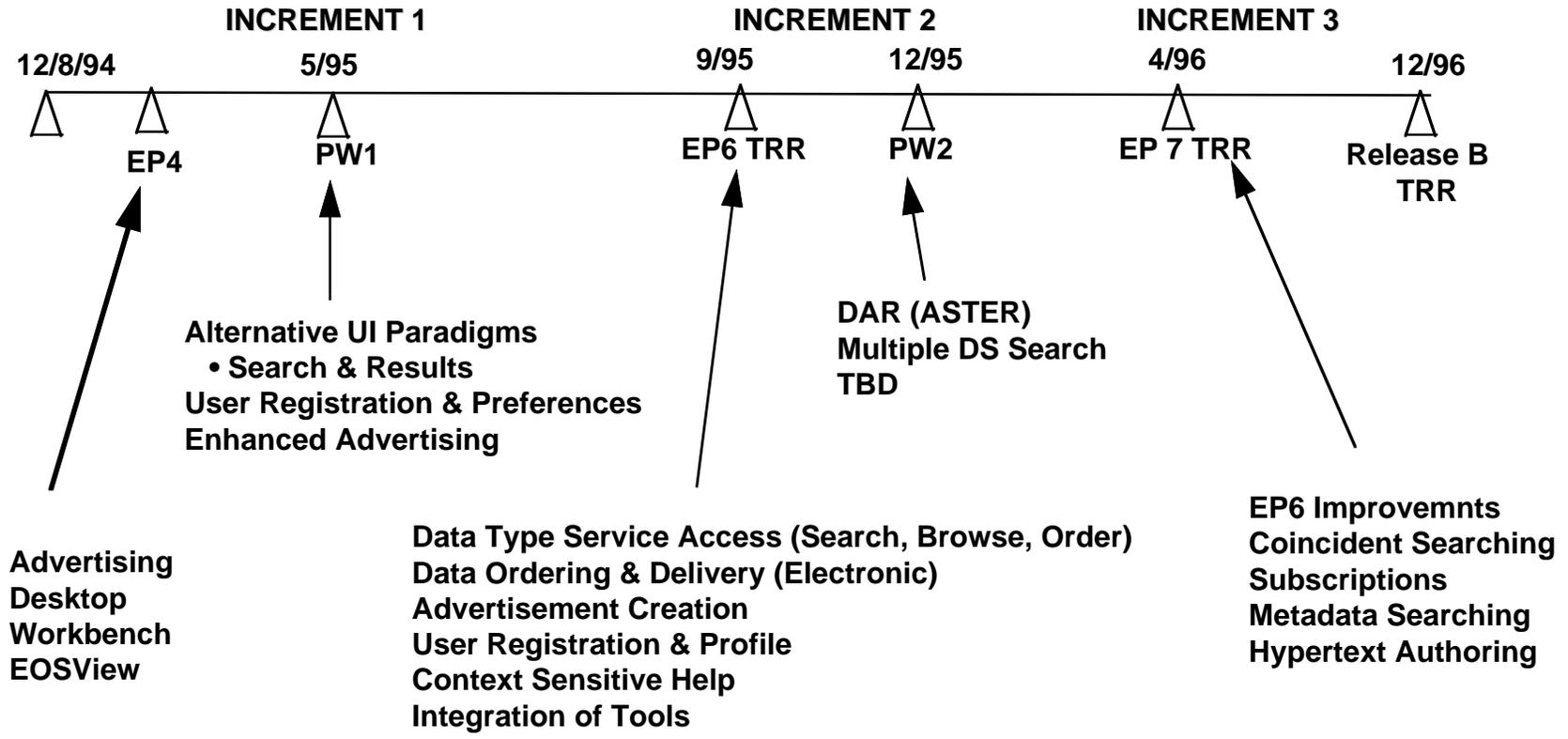
Schedule of Reviews	EP6	PW2	EP7*	PW3**	EP8**
Objectives	6/20/95		1/96		6/96
Design	8/1/95		2/96		7/96
Test Readiness	9/25/95		4/96		9/96
Consent to Ship	10/31/95		5/96		10/96
+Evaluation Readiness	11/16/95		6/96		11/96
Workshop		1/96		6/96	

\* Tentative Dates

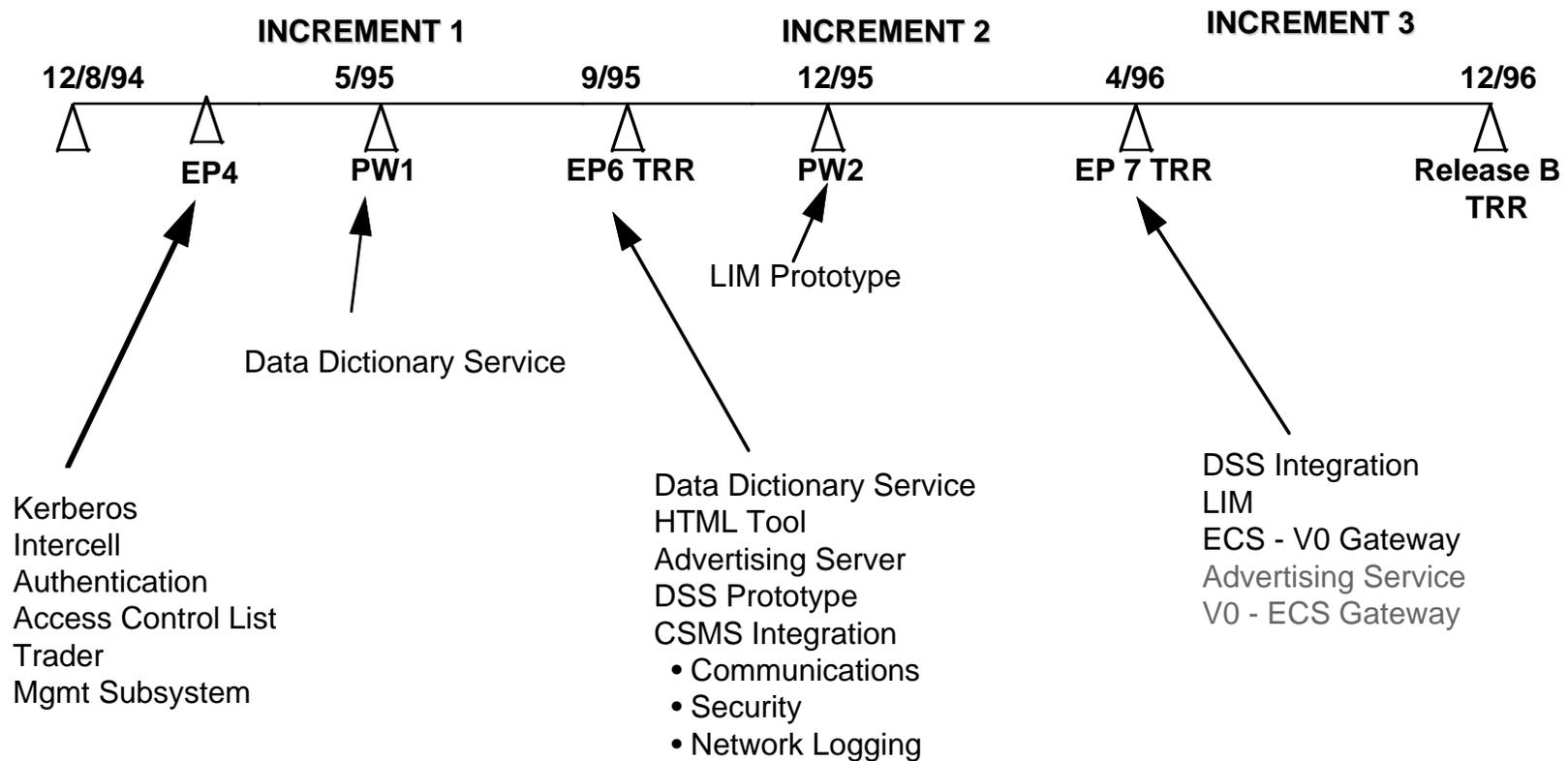
\*\* Tentative Dates but not yet committed

+ Evaluation Period of 8 to 10 weeks

# EP Overall Plan (User Perspective)



# EP Overall Plan (Internals)



# EP6 Adoptions of Recommendations from EP4 Evaluation

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- **General/Overall:**
  - **Provide Better User Control Over the ECS Environment: User Preferences**
  - **Provide Consistency: Fonts, Placement of Buttons, Double vs. Single Clicks**
  - **Consistent and Improved Feedback Indicators**
  - **Follow the ECS Style Guide (To be Released in August) to Maintain Consistency in Look and Feel**
- **EOSView:**
  - **Improve Ease of Use : Highlight Image Files, Rename/Reword Text, Remove HDF Specific Information (Rel A)**
  - **Provide Capability to View Metadata of Images Selected (Rel A)**
- **Workbench:**
  - **Improve Navigation, Include Different Views of Items in the Desktop**
  - **Improve File Management: Moving Files, Selecting Files, Control Keys**

# EP6 Adoptions of Recommendations from PW1 Evaluation

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- **Improve Ease of Use for Boolean Operators**
- **Improve ESST, including**
  - **Polygon Based Regions**
  - **Link to HTML Based Information**
  - **Results Regrouping**
- **Provide Additional (Limited) Data**
- **Provide More Time for Tirekickers During Workshop**
- **Improve Data Dictionary Service**
  - - **Aliases, Temporal/Spatial Valid, Keyword Definition Enhancements**
- **Provide an End-to-End Scenario**
- **Provide Help Capability and User's Guide**

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# **Science Scenarios**

## **Karl Cox**

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**20 June 1995**

# EP6: Science Data and User Scenarios

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- The user scenarios that can be supported are limited by the available data and the capabilities of EP-6
- User modelling has validated user scenarios
- V0 data is available which can be used with some of the validated scenarios.
- “Tirekickers” may have something to contribute.

# Appropriate User Scenarios

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- **Scenario 2 - Advertisement Search, Data Search, Document Retrieval, Data Order**
  - **As written, based on NDVI.**
  - **Scenario applies to other available V0 data, however.**
- **Scenario 6 - Search, browse, display/manipulate**
  - **As written, based on CERES**
  - **Can be modified to use ERBE and ISCCP data**
  - **Data manipulation not part of EOSView**

# Some Candidate V0 Data

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- **ERBE (LaRC)**
  - **No browse product**
  - **Only 1 Data Set in HDF, others in native format**
  - **Some tools are available from LaRC DAAC**
- **ISCCP\_C2 (LaRC)**
  - **In HDF**
  - **Could also be used both as a simulated “browse” product**
  
- **The DAACs may have additional Data to suggest, need to check**
- **Decision on Data Used for EP6 Expected by June 25, 1995**

# EP6 Prototypes and Incremental Development

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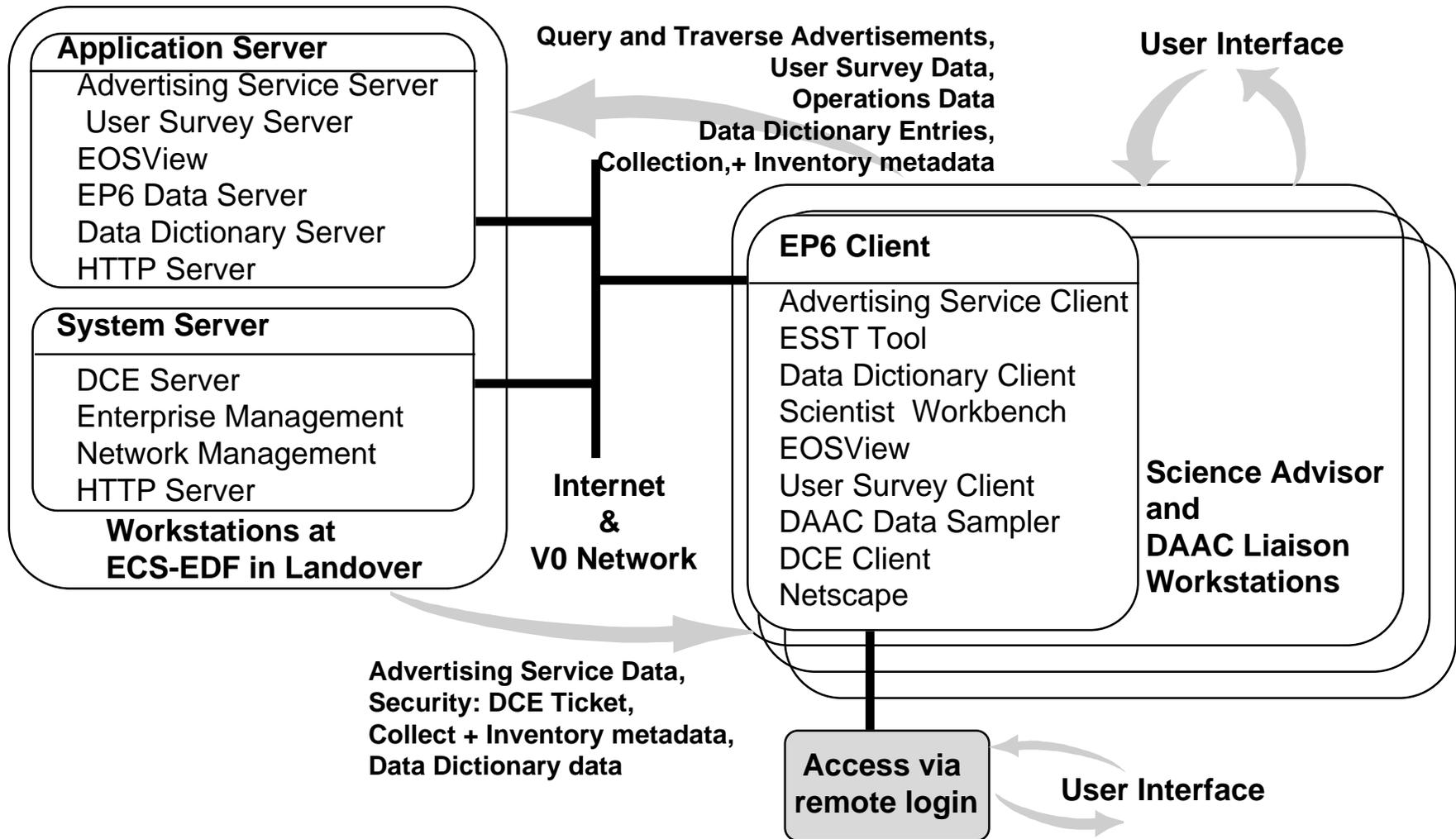
- **Focus**
- **Physical Configuration**
- **Hardware and OS Supported**
- **Client**
- **Interoperability**
- **Data Management**
- **Data Server**
- **Communications & Management**

# EP6 Focus

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- **First Look at Selective ECS (V1) Client**
- **Additional Data**
- **Ability to Order and Retrieve Data**
- **Actual Distributed Objects Interface - Infrastructure**

# EP6 Physical Configuration



# Hardware and OS Supported in EP6

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- **HP 9000/7xx - HP-UX 9.0.5**
- **SUN Sparc - Solaris 2.3 ? 2.4**
- **Possibly SGI**
  - **Negotiating With HP and SGI Now for an OODCE Port, But Unlikely to be Available in Time for EP6 Development**
- **NO Plan for DEC Support**
  - **Additional OODCE Port required (Will Not be Available for EP6)**

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**Release B Client  
Kevin Limperos**

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**20 June 1995**

# EP6 General Client Objectives

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- **Develop toward the ECS Release-B science user interface with a combination of X/Motif and HTML applications.**
- **Incorporate feedback from PW-1.**
- **Incorporate lessons learned acquired from EPs and Version 0.**
- **Comply with ECS Style Guidelines, but document any deviations.**
- **Comply with certain usability checklists, e.g. Ben Shneiderman's.**

# EP6 Client Objectives: ESST

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- **The Earth Science Search Tool (ESST) provides the capability to issue queries to the Data Server and display results.**
- **Queries consist of a set of attribute/value pairs for any combination of core metadata attributes.**
- **Queries may also include attribute/value pairs for product specific metadata attributes.**
- **Browse data can be displayed with EOSView, which will be linked to the ESST.**
- **Data granules can be ordered with the Product Request Tool, which will be linked to the ESST.**

# EP6 Client Objectives: ESST

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- **Results are displayed in the hierarchical nesting widget.**
- **ESST will be linked to the Data Dictionary to obtain definitions associated with selected query results.**
- **Valid Values for attribute value selection will be determined from a valid-value relationship matrix, local to the client.**

# Client Objectives: Other X tools

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- **Product Request Tool will provide data ordering capability.**
- **EOSView will provide browse and data visualization capabilities.**
- **Desktop Manager will provide file management services for users without CDE.**

# Client Objectives: HTML Tools

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- **Data Dictionary Tool** used to obtain definitions of terms and acronyms.
- **User Registration Tool** used to register as an official ECS EP-6 user. **MSS** is responsible for verification and processing the registration data.
- **User Profile Tool** used to change application resource defaults. The defaults are stored by **MSS**, providing the capability for remote resource access by the user.
- **Comment/Survey Tool** will collect users' feedback.

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# **Interoperability**

## **Jerry Hung**

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**20 June 1995**

# Advertising Service for EP6

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- **Provide Production Quality Version of PW1 Advertising**
  - **Browsing Advertisements**
  - **Text Search Advertisements**
  - **Invoking an Advertised Service**
  - **Installing an Advertised Service**
  - **Advertisement Submission**
- **Incorporate PW1 Feedback**
  - **Put Attribute Searching Back in to Advertising Client**
- **API to Advertising Service**
  - **Provide for Programmatic Access to Advertising Service**
- **GCMD Exporter Prototype**

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# **Data Management**

## **Sridhar Muppala**

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**20 June 1995**

# **Rel B DATA DICTIONARY SERVICE (DDS)**

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- **Incremental**
- **Provide Definitions & Descriptions of Data Collections, Attributes, Keywords, ECS Terms, Acronyms & Glossary**
- **Provide Dependent Valids Information**
- **Incorporate Feedback from Prototype Workshop 1 (PW1)**
- **Consists of DDS Database, Application Server Program with OODCE Interface and CGI Scripts for HTTP Server Access**

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# **Data Server EP6 Prototyping**

## **Evelyn Nakamura**

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**20 June 1995**

# Rel A Data Server EP6 Objectives

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- **Data Server EP6 Prototype**

- **Provide Data Type services in support of EP6 Client**
  - Query on collection metadata and granule metadata**
  - Browse integrated with searching**
  - Acquire Data via FTP pull**
  - Notify requestor of data staging**
- **Exercise Data Server public class interfaces**
  - Distributed objects implemented with OODCE infrastructure**
- **Database design for a subset of the ECS Core Metadata**

# RelA Data Server Functionality NOT in EP6

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The following Release A functionality will NOT be part of EP6. Detailed design will be presented at the REL A CDR.

**Automated Data Ingest/Insert**

**Planning and Processing Interfaces**

**Automatic Management of Staging Disk and Cache**

**Resource Queing Capability**

**Subscriptions to Data Server services**

**Physical Media Distribution**

**Operator GUIs**

**Document Data Server**



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# **Communications & Management**

## **Naveen Hota**

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**20 June 1995**

# EP6 Rel A CSMS

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- **Asynchronous Message Passing**
  - **Incremental**
  - **Key Mechanism Required for All Subsystems**
  - **Provides an Asynchronous and Deferred Synchronous Communications Mechanism**
  - **Implement Using Threads in OODCE**
- **Extensions to Directory/Naming**
  - **Incremental**
  - **Key Mechanism**
  - **Used by Applications as Well as Other Key Mechanisms to Store and Retrieve Application/Subsystem-Specific Data in a Central Place**
  - **Implement as an Abstraction of XOM/XDS Interface**

# EP6 Rel A CSMS (Contd')

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- **Security**
  - **Incremental**
  - **Key Mechanism Required by Every Subsystem**
  - **Provides Secure Communications Between Clients and Server**
  - **Encapsulate DCE Mechanisms with Object Technology and Provide Persistence to ACLs**
  
- **User Registration**
  - **Prototype**
  - **Key Functionality**
  - **Management of Authorized ECS Accounts**
  - **Implement Using Cell Directory Service (CDS) and Sybase for Design Trade**

# EP6 Rel A CSMS (Contd')

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- **Startup / Shutdown**
  - **Prototype**
  - **Key Management Service**
  - **Provides Lifecycle Services to ECS Applications**
  - **Using Extensible SNMP Agents and OODCE**
  
- **Instrumentation**
  - **Prototype**
  - **Key Management Service**
  - **Provides Capability to Retrieve Application Specific Performance Data**
  - **Using Extensible SNMP Agents and OODCE**

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# **EP6 Evaluation Plan**

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**Jan Poston Day**

**EP6 Objectives Review**

# Testing & Integration

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- **Incremental Reviews/Audits**
  - **Periodic Audits of Software Development Files by Quality Office**
  - **Internal Peer Reviews: Design and Code Inspections**
- **EP Integration and Test (I&T)**
  - **Dedicated I&T Team**
  - **Software Configuration Management (ClearCase)**
  - **Integration Test Planning and Results Notebook**
  - **Non-Conformance Reports (NCRs): Identification and Resolution**
- **Integration for a Release**
  - **Software Development Files Prior to Shipment**
  - **Code Already Under Configuration Management**
  - **NCRs from Unit Test and Operational Fixes**
  - **Test Readiness Review (TRR) to begin Release I&T**

# EP6 Evaluation Methods

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- **Usability Testing**
  - **Test sessions based on user scenarios**
  - **Tests conducted in controlled environment at Landover**
- **On-line Survey using the Interactive Evaluation Tool (IET)**
  - **Questions from EP4 and PW1 will be re-used as appropriate in order to monitor changes in user satisfaction since previous EPs.**

# EP6 Evaluation Terms

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- **Independent Evaluators** - NASA Tirekickers and other potential end users of the ECS. They will access the EP6 at their own convenience using their own resources in an uncontrolled, or independent environment.
- **Usability Participants** - a subset of the Independent Evaluators who will participate in the usability test sessions conducted at Landover. Usability test sessions will be conducted in a controlled environment using tasks developed for EP6 user scenarios.
- **Evaluation Period** - the 8 to 10 week period during which Independent Evaluators will be able to log on and test the EP6.

# User Feedback

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- **All EP6 Evaluator comments from the On-line survey and Usability Testing will be analyzed.**
- **Key comments will be input as suggestions to the User Recommendations Data Base (URDB) and tracked.**
- **User comments, usability test results, evaluation statistics, and lessons learned will be included in the EP6 Evaluation Report.**

# EP6 Objectives Review Wrap-UP

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- **Additional Comments**
- **Next: EP6 Design Review ~ 8/1/95**