

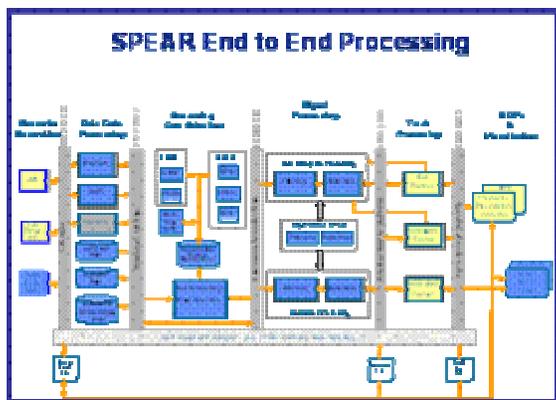


(For Official Use Only)

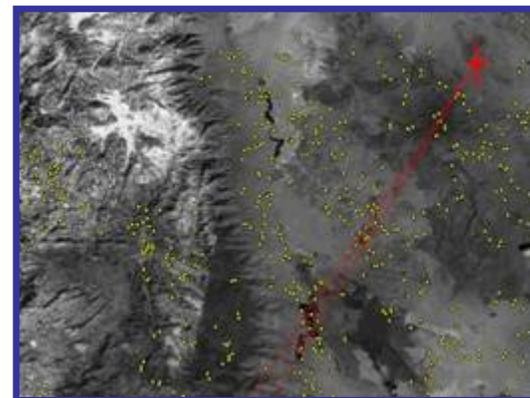


## An Update On the Status Of the SPEAR Testbed at AFRL

2004 KASSPER Workshop



7 April 2004  
Clearwater, FL



**William Baldygo**  
**Todd Cushman**  
**Mark Novak**  
**Air Force Research Lab**  
**(AFRL/SNRT)**

**Jeffrey Tyler**  
**Robert Bozek**  
**Walter Szczepanski**  
**Black River Systems Co., Inc.**



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# Agenda

---

- **Background – Reason for SPEAR**
- **SPEAR Architecture Discussion**
- **SPEAR Components Description**
- **“Demo” With KASSPER Data Set #2**
- **Summary**



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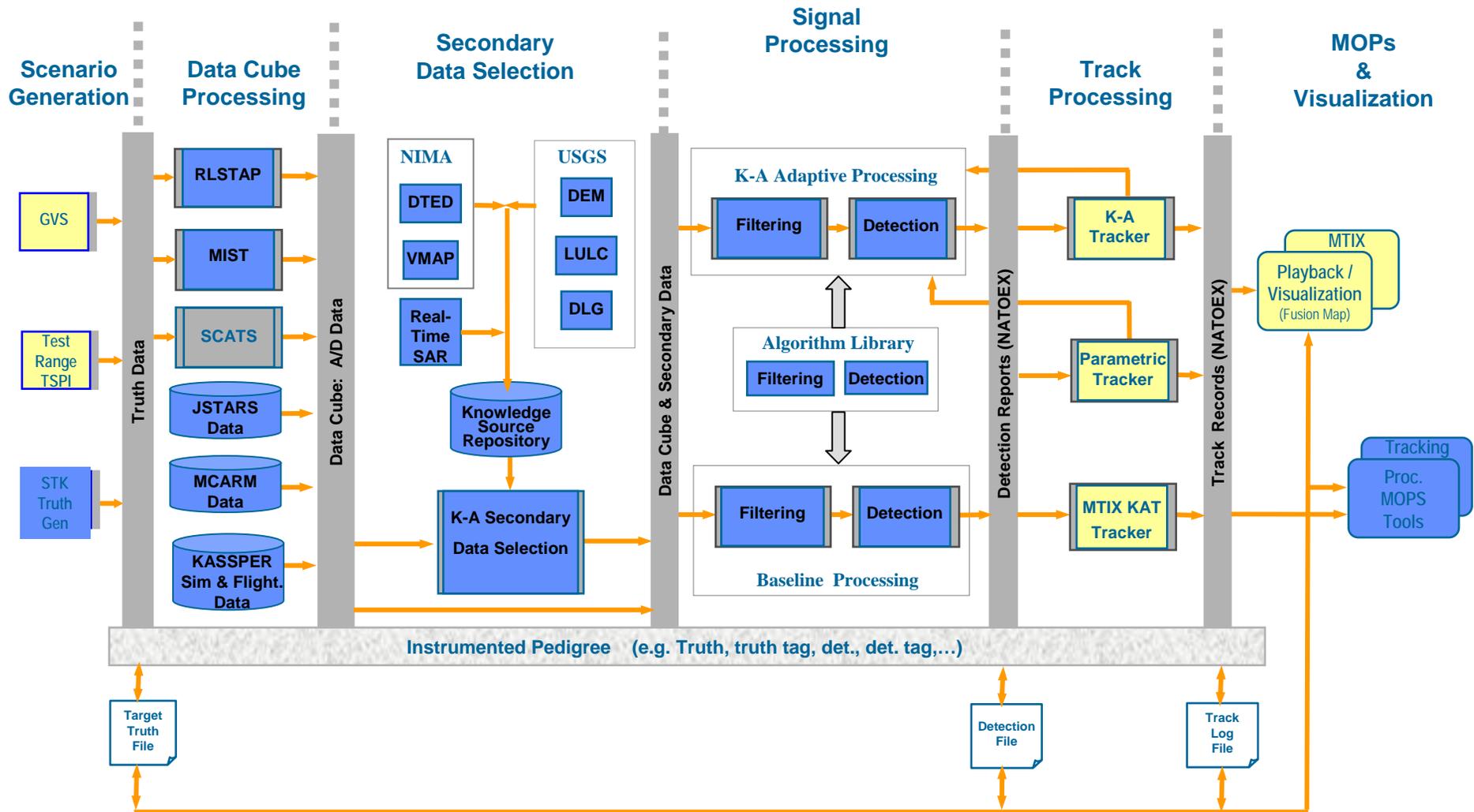
## Why SPEAR?

- **More Effective Demonstration of Warfighter Relevance & Transition to Warfighter Requires Detailed System-specific Analysis and Mapping to Appropriate Metrics (i.e. Tracking)**
- **Integration of Tools Across Disciplines:**
  - **Scenario Generation**
  - **Modeling & Simulation (Datacube Generation)**
  - **Measured Radar Datasets (MCARM, etc)**
  - **Knowledge Sources (DTED, NLC, etc)**
  - **Algorithm Library (Filtering, Detection & Tracking)**
  - **Measures of Performance**
- **Classified Facility (Computers, Telecomm, etc)**
- **Rigorous Algorithm Evaluation & Analysis**



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# SPEAR End to End Processing



AFRL/SN  
AFRL/IF

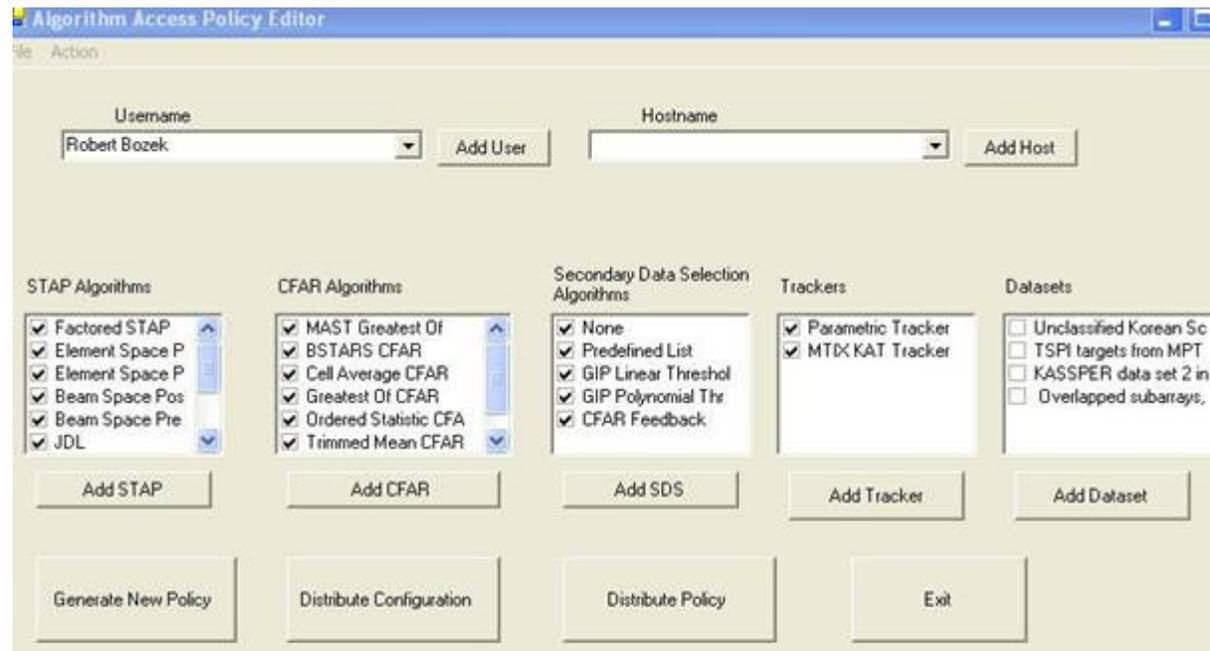
**SPEAR supports end to end processing from target simulation, through data cube generation, filtering, detection processing and tracking.**





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# Administrative Tools



- **SPEAR** contains a central administration tool for adding algorithms, datasets, users, and hosts to **SPEAR** configuration.
- Distributes new configurations to servers and all clients registered in the database.
- Allows the administrator to permit or deny access for any user to algorithms.
- Works hand in hand with the other components to provide a seamless testbed configuration



# (For Official Use Only) Administrative Tools Adding Algorithms



Algorithm Access Policy Editor

File

**Add STAP**

Algorithm Name: AFRL STAP

Company: AFRL

User Next Avail. Identifier

Add Parameters

Add Algorithm

Hostname: [Dropdown] Add Host

Secondary Data Selection Algorithms

- CFAR Feedback
- ISL GIP
- BRSC GIP
- Predefined List

Trackers

- Parametric Tracker
- MTIX KAT Tracker
- Knowledge-Aided Tr

Datasets

- Simple GVS scenario w
- TSPI targets from MPT
- KASSPER data set 2 in
- Overlapped subarrays

SPEAR Testbed

Algorithm AFRL STAP added successfully.

OK

Add Tracker

Add Dataset

Generate New Policy

Distribute Configuration

Distribute Policy

Exit



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## **SPEAR Server**



- **Provides secure access to the SPEAR MATLAB processing environment**
- **Manages user sessions using MySQL database**
- **Queues jobs on any given host. Allows SPEAR users to put jobs on queue to process in the order which they were received**
- **Dynamic Configuration**
  - **New Algorithms are recognized as soon as administrative software distributes their info**
  - **No need to recompile, restart server or client software**



## (For Official Use Only) SPEAR Server



```
C:\Documents and Settings\Jeff Tyler\TYLER\My Documents\Visual Studio Projects\SPEARSe... - [X]
Enter a port number for the main SPEAR server.
This will be the server that accepts the GUI generated
configuration files for SPEAR experiments.
Port: 7777
You have chosen 7777.

Enter a port number for the auxillary SPEAR server.
This will be the server that accepts the messages
and status requests from the SPEAR user applications.
Port: 7778
You have chosen 7778.

Enter a port number for the SPEAR policy server.
This will be the server that accepts the system-wide
policies and configurations for dynamic updates and securit
within the SPEAR facility
Port: 7779
You have chosen 7779.

Policy Server Thread Started
Main Parser Started...
Auxillary Parser Started...
Policy Parser Started...
Auxillary Server Thread Started
Main Server Thread Started

C:\Documents and Settings\Jeff Tyler\TYLER\My Documents\Visual Studio Projects\SPEARSe... - [X]
<algorithm_name>Cell Average CFAR</algorithm_name>
<algorithm_id>1</algorithm_id>
<vendor_name>AFRL</vendor_name>
<vendor_id>1</vendor_id>
<number_of_parameters>4</number_of_parameters>
</algorithm>
<parameters>
<dimension>1</dimension>
<slidingWindowRange>1</slidingWindowRange>
<guardRange>1</guardRange>
<probFalseAlarm>1.000000</probFalseAlarm>
</parameters>
</cfar>
<datasetInfo>
<startDwell>1</startDwell>
<stopDwell>1</stopDwell>
<nunRangeProcess>1</nunRangeProcess>
<enablePlots>-1</enablePlots>
<scenarioID>1</scenarioID>
</datasetInfo>
</testbed_config>
Document Enqueued...
Dequeued Document...Preparing parser to execute
```

- Provides secure access to the SPEAR MATLAB processing environment
- Manages user sessions using MySQL database
- Queues jobs on any given host. Allows SPEAR users to put jobs on queue to process in the order which they were received
- Dynamic Configuration
  - New Algorithms are recognized as soon as administrative software distributes their info
  - No need to recompile, restart server or client software



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## Software Security



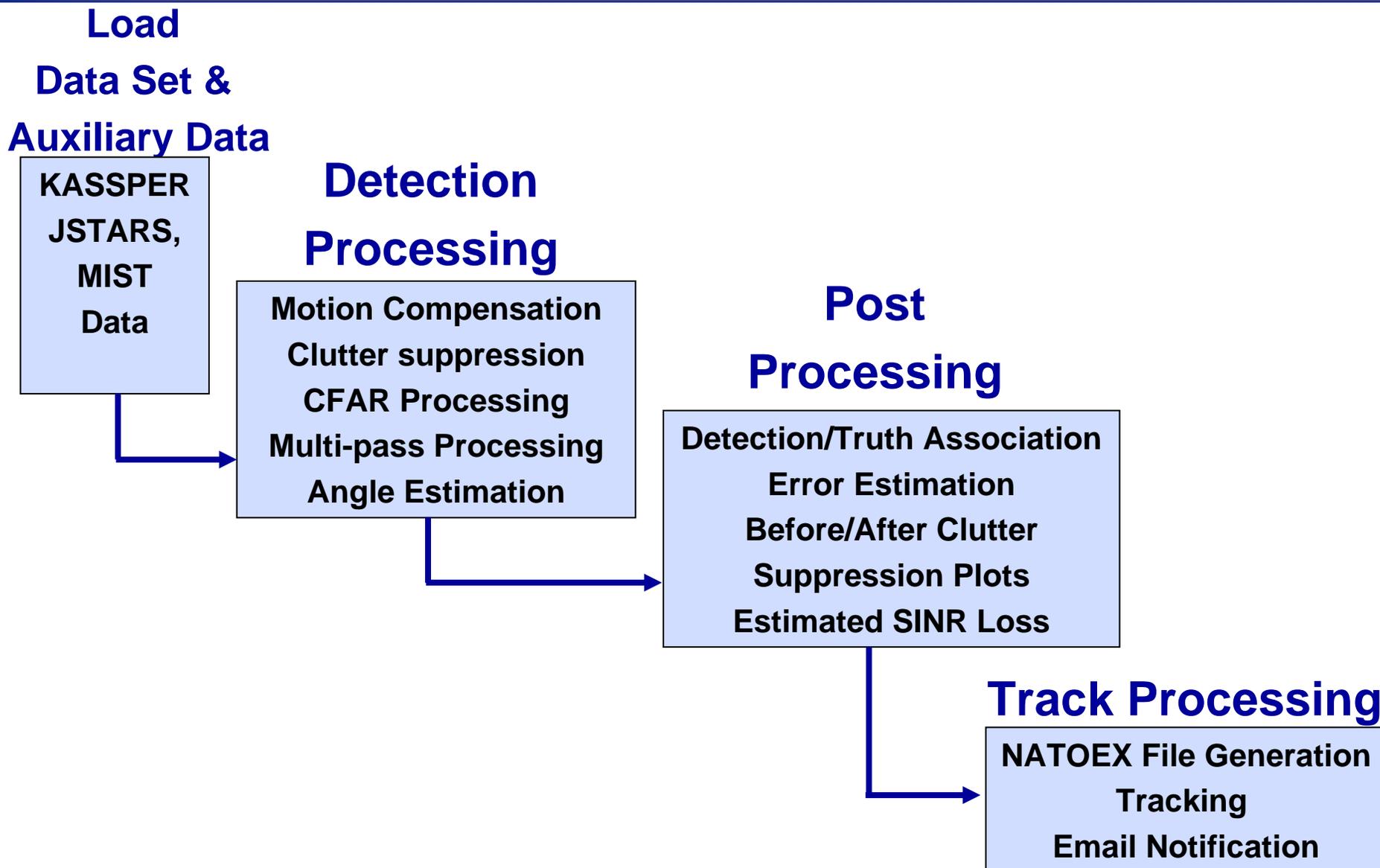
- **Layers of security**
  - **Authentication** – Users must log on to the SPEAR System to be allowed to access any of its capabilities.
  - **Intellectual property protection** – Users can only use algorithms and datasets that they have permissions for in the SPEAR policy
  - **File system security** – algorithms and other important files will be protected from general users
  - **Physical Security** – server and administrative software located on hosts that are not available to everyone physically



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# Automated MATLAB Process





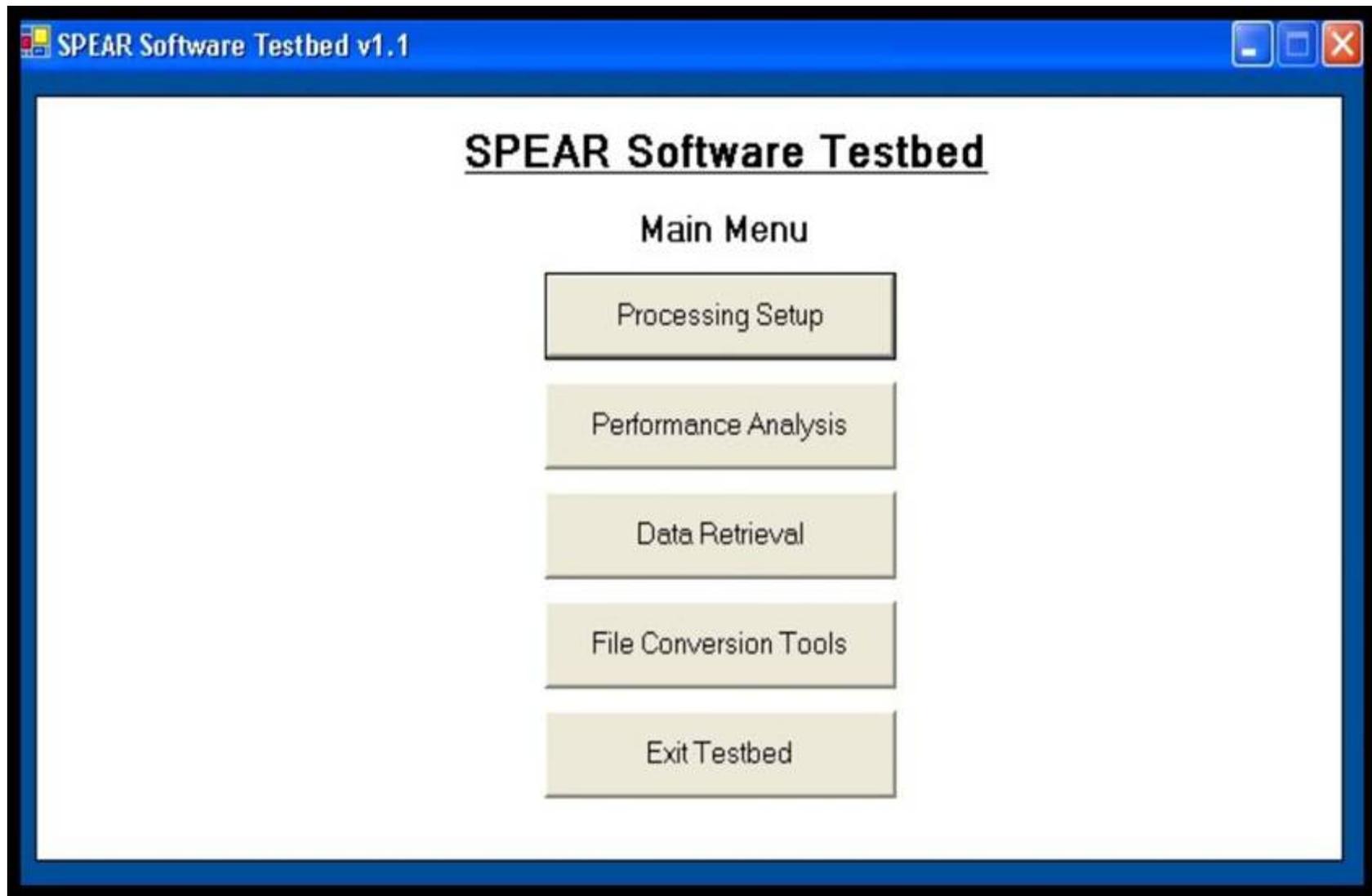
(For Official Use Only)  
**SPEAR Demo**



- Show how to select data set (KASSPER data set)
- Show how to configure automated processing
- Show how to view detection MOPs
- Show how to view tracking MOPs
- Show Visualization of detections



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**SPEAR Main Menu**

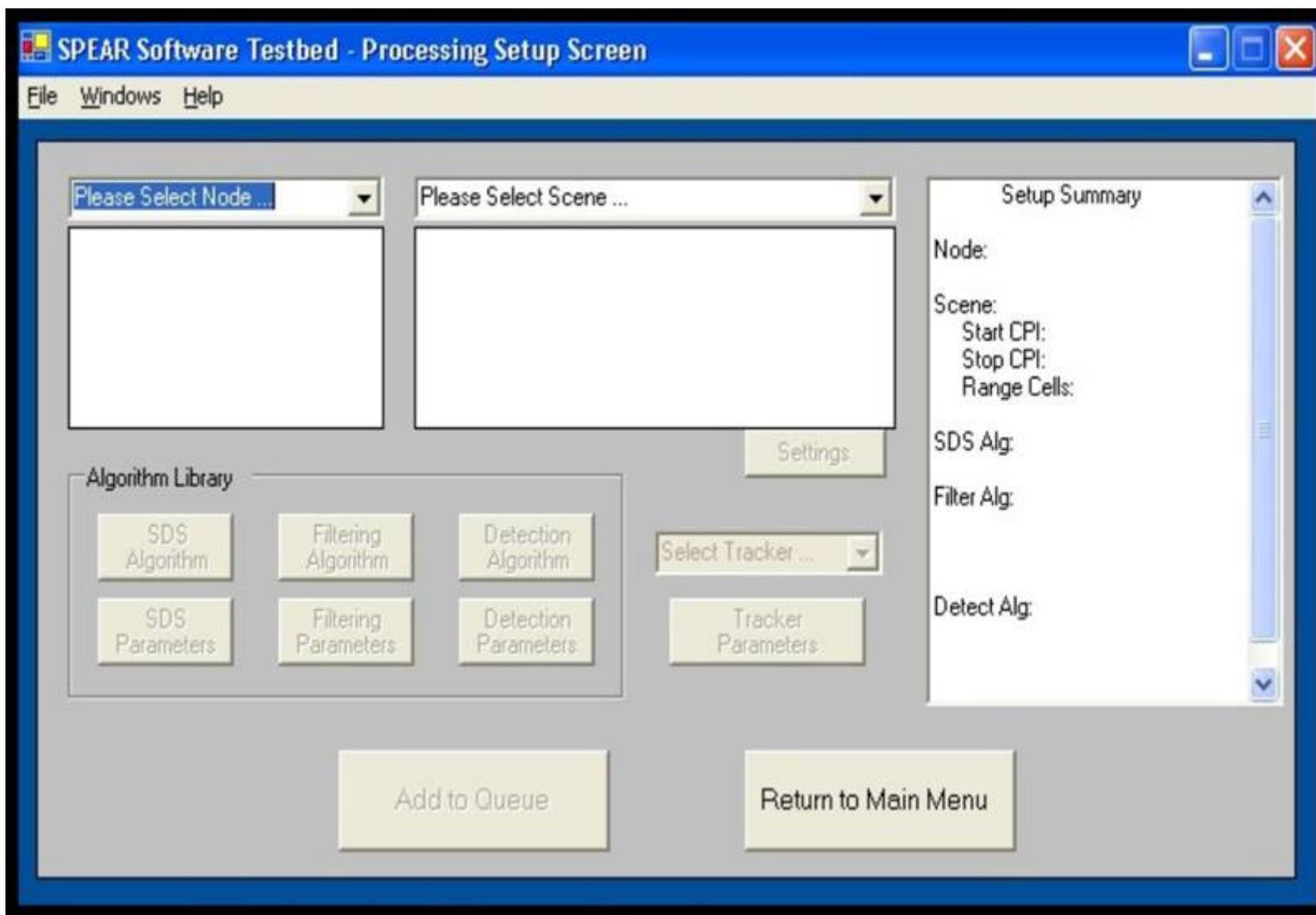




(For Official Use Only)



# Processing Setup Screen





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# Selecting a Dataset



The screenshot shows the 'SPEAR Software Testbed - Processing Setup Screen' window. It features a menu bar with 'File', 'Windows', and 'Help'. The main interface includes two dropdown menus at the top: 'Please Select Node ...' and 'Please Select Scene ...'. The scene dropdown is open, showing a list of options: 'Global Hawk MP-RTIP Version 1', 'Unclassified JSTARS MPTE 16 Pulse 1 PRF', 'KASSPER Data 2' (highlighted), and 'Global Hawk MP-RTIP Version 2'. Below these are several buttons: 'Settings', 'Add to Queue', and 'Return to Main Menu'. An 'Algorithm Library' section contains buttons for 'SDS Algorithm', 'Filtering Algorithm', 'Detection Algorithm', 'SDS Parameters', 'Filtering Parameters', and 'Detection Parameters'. A 'None' dropdown menu and a 'Tracker Parameters' button are also present. On the right, a 'Setup Summary' panel displays fields for 'Node:', 'Scene:', 'Start CPI:', 'Stop CPI:', 'Range Cells:', 'SDS Alg:', 'Filter Alg:', and 'Detect Alg:'.



(For Official Use Only)



# KASSPER Data Set2 Selected

The screenshot shows the 'SPEAR Software Testbed - Processing Setup Screen' window. The title bar includes 'File', 'Windows', and 'Help' menus. The main interface features a 'Please Select Node ...' dropdown menu, a data selection dropdown currently set to 'KASSPER Data 2', and a 'Setup Summary' panel on the right. The data selection dropdown provides details: 'Generated By: ISL', 'Generated With: SCATS', 'Location: Southern California', 'Channel: 12', and 'Description: KASSPER data set 2 in California.' Below this is an 'Algorithm Library' section with buttons for 'SDS Algorithm', 'Filtering Algorithm', 'Detection Algorithm', 'SDS Parameters', 'Filtering Parameters', and 'Detection Parameters'. A 'Settings' button is located to the right of the data selection dropdown. At the bottom, there are 'Add to Queue' and 'Return to Main Menu' buttons. The 'Setup Summary' panel on the right lists: 'Node:', 'Scene: KASSPER Data 2', 'Start CPI:', 'Stop CPI:', 'Range Cells:', 'SDS Alg:', 'Filter Alg:', and 'Detect Alg:'.



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# Selecting CPIs to Process

The screenshot displays the SPEAR Software Testbed interface with a 'Scene Settings' dialog box open. The dialog box contains the following fields and controls:

- Start CPI:** A text input field containing the value '1'.
- Stop CPI:** A text input field containing the value '90'.
- Range Cells to Process:** A text input field containing the value '1667'.
- Submit:** A button at the bottom of the dialog box.

The background interface includes a menu bar with 'File', 'Windows', and 'Help'. Below the menu bar, there is a 'Please Select Node ...' dropdown menu and a list of nodes including 'KAS', 'Gen', 'Gen', 'Loc', 'Cha', and 'Des'. An 'Algorithm Library' section contains four buttons: 'SDS Algorithm', 'Filtering Algorithm', 'SDS Parameters', and 'Filtering Parameters'. A 'Setup Summary' panel on the right lists the following information:

- Node:
- Scene: KASSPER Data 2
- Start CPI:
- Stop CPI:
- Range Cells:
- SDS Alg:
- Filter Alg:
- Detect Alg:

At the bottom of the main interface, there are buttons for 'Add to' and 'in Menu'.



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# Selecting CPIs to Process

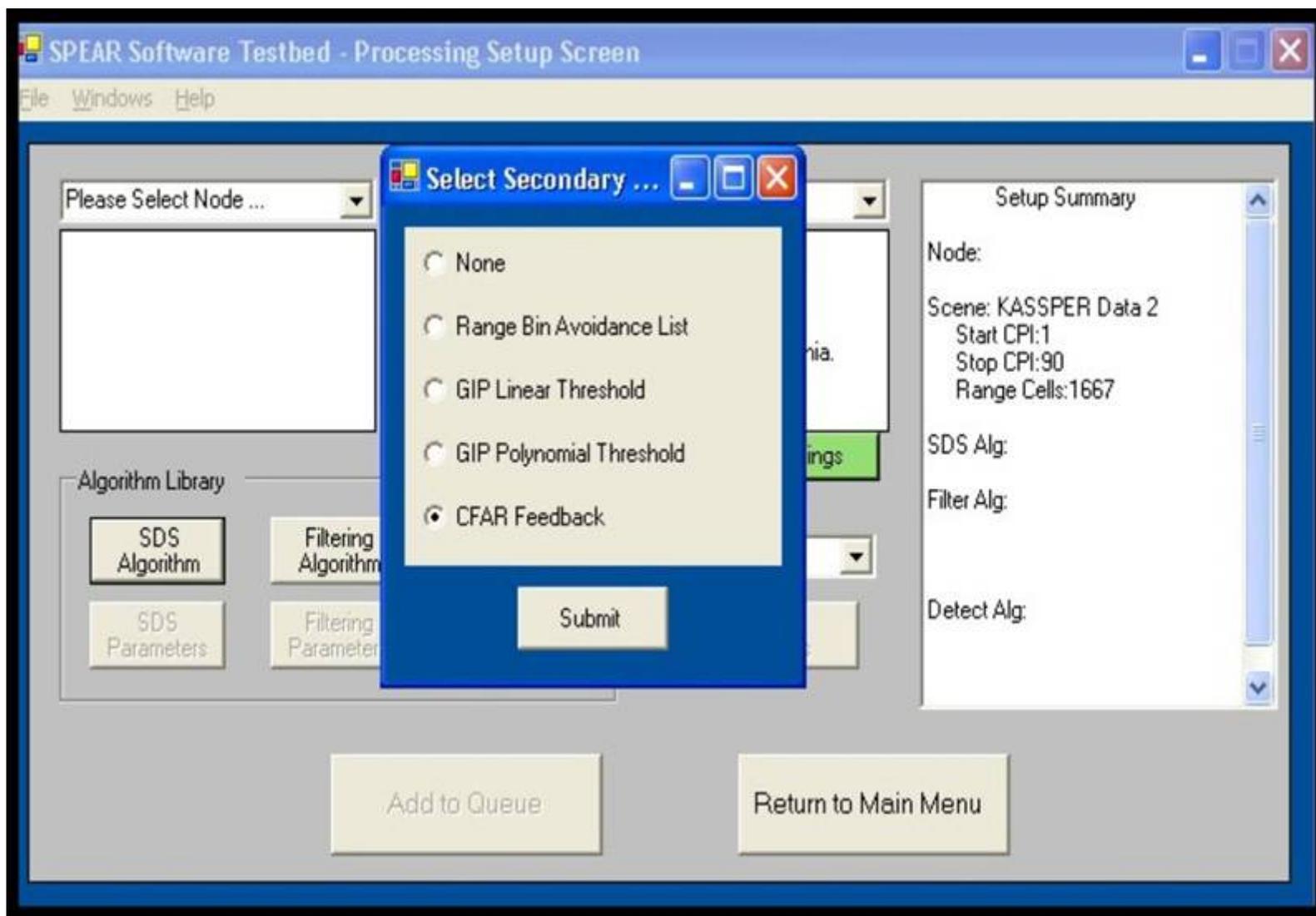
The screenshot shows the 'SPEAR Software Testbed - Processing Setup Screen' with a menu bar (File, Windows, Help) and a main interface. At the top left is a dropdown menu 'Please Select Node ...'. To its right is a dropdown menu 'KASSPER Data 2' which is expanded to show: 'Generated By: ISL', 'Generated With: SCATS', 'Location: Southern California', 'Channel: 12', and 'Description: KASSPER data set 2 in California.' Below this is a green 'Settings' button. In the bottom left is an 'Algorithm Library' section with buttons for 'SDS Algorithm', 'Filtering Algorithm', 'Detection Algorithm', 'SDS Parameters', 'Filtering Parameters', and 'Detection Parameters'. To the right of the library is a dropdown menu set to 'None' and a 'Tracker Parameters' button. On the right side is a 'Setup Summary' panel with a scroll bar, containing: 'Node:', 'Scene: KASSPER Data 2', 'Start CPI:1', 'Stop CPI:90', 'Range Cells:1667', 'SDS Alg:', 'Filter Alg:', and 'Detect Alg:'. At the bottom are two large buttons: 'Add to Queue' and 'Return to Main Menu'.



(For Official Use Only)



## Secondary Data Selection Scheme





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# Clutter Suppression Algorithm

The screenshot displays the SPEAR Software Testbed interface. A central dialog box titled "Select Clutter Sup..." is open, showing a list of clutter suppression algorithms with radio buttons. The "JDL" option is selected. The background interface includes a "Please Select Node ..." dropdown, an "Algorithm Library" with buttons for "SDS Algorithm", "Filtering Algorithm", "SDS Parameters", and "Filtering Parameters", and a "Setup Summary" panel on the right. The "Setup Summary" panel shows the following details:

- Node:
- Scene: KASSPER Data 2
- Start CPI: 1
- Stop CPI: 90
- Range Cells: 1667
- SDS Alg: CFAR Feedback
- Filter Alg:
- Detect Alg:

Buttons for "Add" and "Submit" are visible at the bottom of the dialog box, and a "Main Menu" button is visible in the background interface.



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# Configuring STAP Algorithm

The screenshot displays the 'Enter JDL Parameters' dialog box within the SPEAR Software Testbed. The dialog box is a standard Windows-style window with a blue title bar and a white background. It contains a list of parameters for configuring the STAP algorithm, each with a corresponding input field or dropdown menu. The parameters and their values are as follows:

Parameter	Value
Include Delta Beam	Yes
MTI Weighting Method	Taylor
Temporal Taylor Sidelobe Level	60
Spatial Taylor Sidelobe Level	40
Temporal Sidelobe Taylor nbar	8
Spatial Sidelobe Taylor nbar	5
RMS Noise Level	2
Diagonal Loading	-3
Reference Range Cells Per Side	12
Guard Cells Per Side	1
Temporal Degrees of Freedom	3
Spatial Degrees of Freedom	4

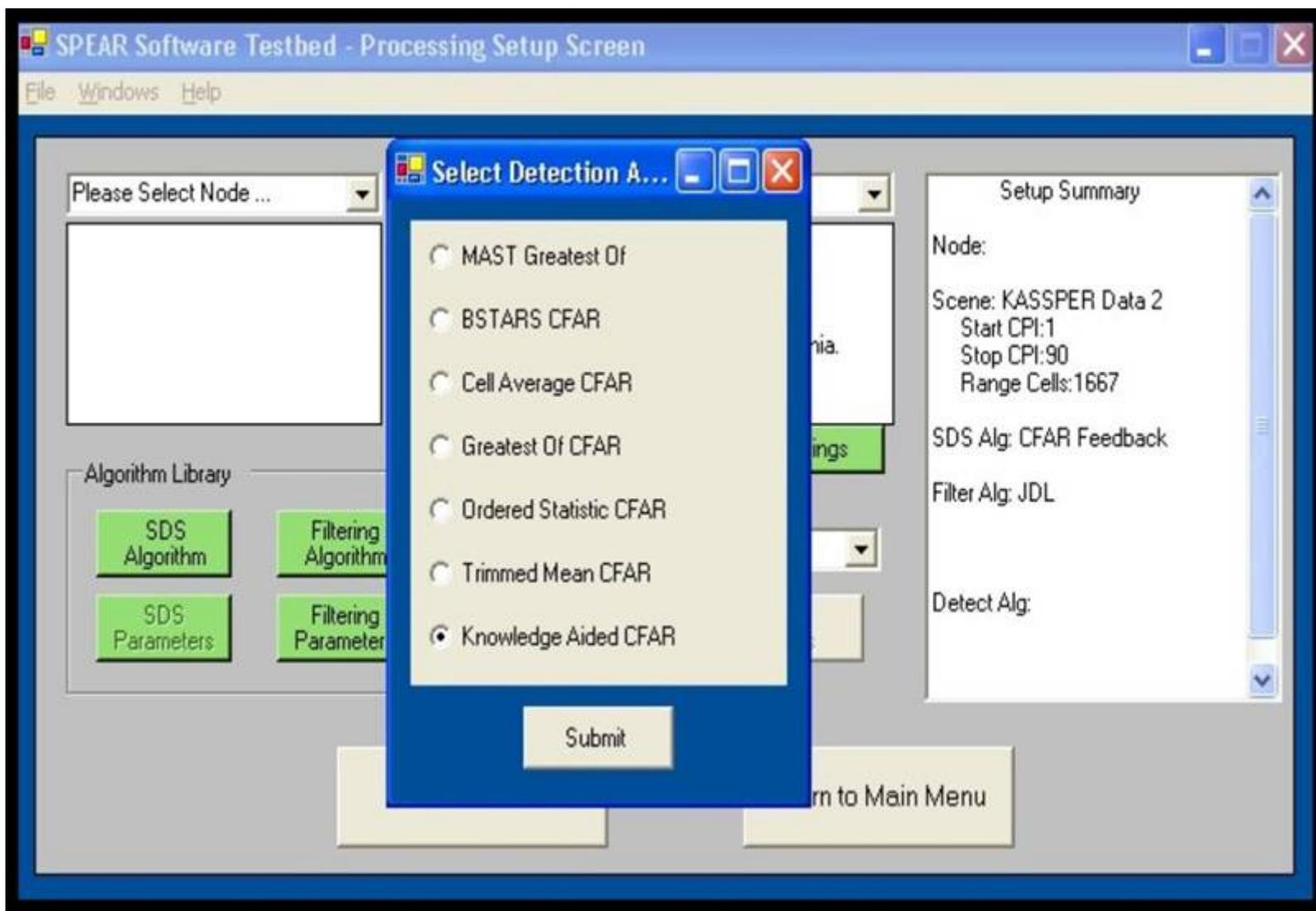
At the bottom of the dialog box, there are two buttons: 'Submit' and 'Defaults'. The background of the testbed interface shows a menu bar with 'File', 'Windows', and 'Help'. Below the menu bar is a 'Please Select Node ...' dropdown menu. The 'Algorithm Library' section contains four buttons: 'SDS Algorithm', 'Filtering Algorithm', 'SDS Parameters', and 'Filtering Parameters'. On the right side of the background, there is a 'Setup Summary' window with a scrollable list of parameters and values, including 'CLASSPER Data 2', 'CPI:1', 'CPI:90', 'e Cells:1667', 'CFAR Feedback', and 'JDL'.



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# Selecting CFAR Technique





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# Configuring CFAR Algorithm

The screenshot shows the 'SPEAR Software Testbed - Processing Setup Screen' with a modal dialog box titled 'Enter Knowledge Aided CFAR Parameters'. The dialog box contains the following parameters:

Parameter	Value
Ordered Statistic Multiplier (e.g.16)	16
High Cells to Trim (eg.1)	1
Low Cells to Trim (eg. 1)	1
Guard Cells Per Side	1
Window Width	20
Pfa	0.001

Buttons at the bottom of the dialog are 'Submit' and 'Defaults'. Below the dialog, there are two large buttons: 'Add to Queue' and 'Return to Main Menu'. The background window shows an 'Algorithm Library' with buttons for 'SDS Algorithm', 'Filtering Algorithm', 'SDS Parameters', and 'Filtering Parameter'. A 'Setup Summary' pane on the right lists parameters like 'KASSPER Data 2', 'CPI:1', 'CPI:90', 'Cells:1667', and 'Alg: Knowledge Aided CFAR'.



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# Selecting Tracking Method

The screenshot shows the 'SPEAR Software Testbed - Processing Setup Screen' window. The title bar includes 'File', 'Windows', and 'Help' menus. The main interface is divided into several sections:

- Node Selection:** A dropdown menu labeled 'Please Select Node ...' is currently empty.
- Scene Information:** A dropdown menu shows 'KASSPER Data 2'. Below it, a text box displays: 'Generated By: ISL', 'Generated With: SCATS', 'Location: Southern California', 'Channel: 12', and 'Description: KASSPER data set 2 in California.' A green 'Settings' button is positioned to the right of this text box.
- Algorithm Library:** A section containing six green buttons: 'SDS Algorithm', 'Filtering Algorithm', 'Detection Algorithm', 'SDS Parameters', 'Filtering Parameters', and 'Detection Parameters'.
- Tracking Method Selection:** A dropdown menu is set to 'Parametric Tracker'. The expanded list shows three options: 'None', 'Parametric Tracker' (highlighted), and 'MTIX KAT Tracker'.
- Setup Summary:** A scrollable text area on the right provides a summary of the current configuration: 'Node:', 'Scene: KASSPER Data 2', 'Start CPI:1', 'Stop CPI:90', 'Range Cells:1667', 'SDS Alg: CFAR Feedback', 'Filter Alg: JDL', and 'Detect Alg: Knowledge Aided CFAF'.
- Action Buttons:** At the bottom, there are two large buttons: 'Add to Queue' and 'Return to Main Menu'.



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# Selecting Server/Processing Node

SPEAR Software Testbed - Processing Setup Screen

File Windows Help

Please Select Node ...

- localhost
- SPEAR WATT07
- SPEAR Server 1
- SPEAR Server 2

KASSPER Data 2

Generated By: ISL  
Generated With: SCATS  
Location: Southern California  
Channel: 12  
Description: KASSPER data set 2 in California.

Settings

Algorithm Library

- SDS Algorithm
- Filtering Algorithm
- Detection Algorithm
- SDS Parameters
- Filtering Parameters
- Detection Parameters

Parametric Tracker

Tracker Parameters

Setup Summary

Node:

Scene: KASSPER Data 2  
Start CPI:1  
Stop CPI:90  
Range Cells:1667

SDS Alg: CFAR Feedback

Filter Alg: JDL

Detect Alg: Knowledge Aided CFAF

Add to Queue

Return to Main Menu



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**Ready to Run**



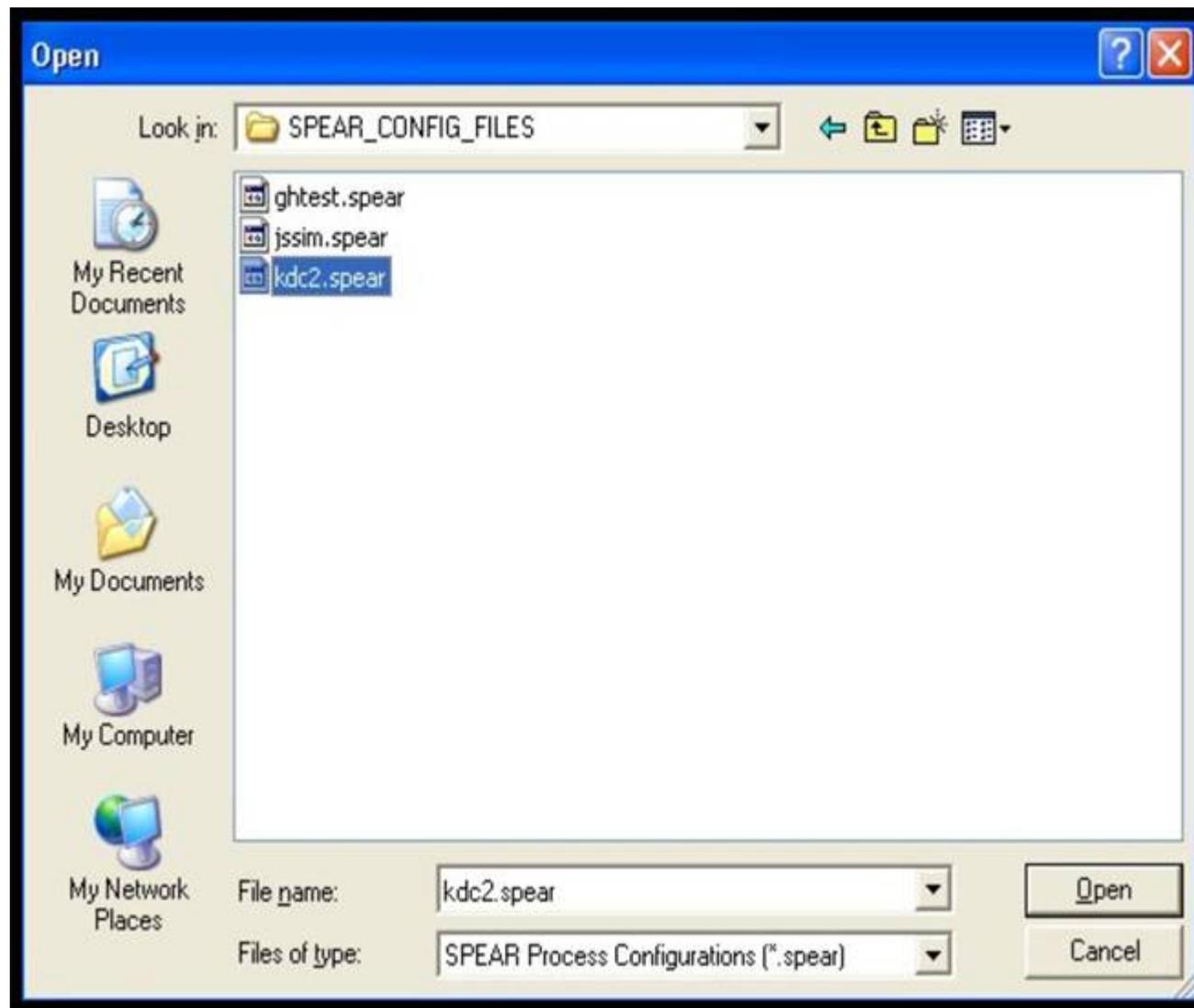
The screenshot shows a software interface titled "SPEAR Software Testbed - Processing Setup Screen". It features a menu bar with "File", "Windows", and "Help". The main area is divided into several sections:

- Host Information:** A dropdown menu shows "localhost". Below it, a text box displays "Name: localhost", "OS: Windows", and "IP Address: 127.0.0.1".
- Scene Information:** A dropdown menu shows "KASSPER Data 2". Below it, a text box displays "Generated By: ISL", "Generated With: SCATS", "Location: Southern California", "Channel: 12", and "Description: KASSPER data set 2 in California." A green "Settings" button is located below this section.
- Algorithm Library:** A section containing six green buttons: "SDS Algorithm", "Filtering Algorithm", "Detection Algorithm", "SDS Parameters", "Filtering Parameters", and "Detection Parameters".
- Tracker Selection:** A dropdown menu shows "Parametric Tracker" and a green "Tracker Parameters" button below it.
- Setup Summary:** A scrollable text area on the right containing:
  - Node: localhost
  - Scene: KASSPER Data 2
    - Start CPI: 1
    - Stop CPI: 90
    - Range Cells: 1667
  - SDS Alg: CFAR Feedback
  - Filter Alg: JDL
  - Detect Alg: Knowledge Aided CFAR

At the bottom, there are two large buttons: a green "Add to Queue" button and a grey "Return to Main Menu" button.



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**Configuration Files**





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# Loaded Configuration File

SPEAR Software Testbed - Processing Setup Screen

File Windows Help

Please Select Node ...

KASSPER Data 2

Generated By: ISL  
Generated With: SCATS  
Location: Southern California  
Channel: 12  
Description: KASSPER data set 2 in California.

Settings

Algorithm Library

SDS Algorithm Filtering Algorithm Detection Algorithm

SDS Parameters Filtering Parameters Detection Parameters

Parametric Tracker

Tracker Parameters

Setup Summary

Node:  
Scene: KASSPER Data 2  
Start CPI: 1  
Stop CPI: 2  
Range Cells: 1667

SDS Alg: None  
Filter Alg: JDL  
Detect Alg: Knowledge Aided CFAF

Add to Queue Return to Main Menu



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## Selecting Server/Processing Node

SPEAR Software Testbed - Processing Setup Screen

File Windows Help

Please Select Node ...

- localhost
- SPEAR WATT07
- SPEAR Server 1
- SPEAR Server 2

KASSPER Data 2

Generated By: ISL  
Generated With: SCATS  
Location: Southern California  
Channel: 12  
Description: KASSPER data set 2 in California.

Settings

Algorithm Library

- SDS Algorithm
- Filtering Algorithm
- Detection Algorithm
- SDS Parameters
- Filtering Parameters
- Detection Parameters

Parametric Tracker

Tracker Parameters

Setup Summary

Node:

Scene: KASSPER Data 2  
Start CPI:1  
Stop CPI:90  
Range Cells:1667

SDS Alg: CFAR Feedback

Filter Alg: JDL

Detect Alg: Knowledge Aided CFAF

Add to Queue

Return to Main Menu



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**Ready to Run**

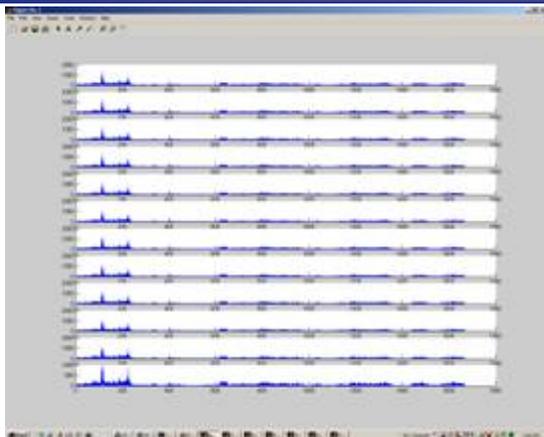




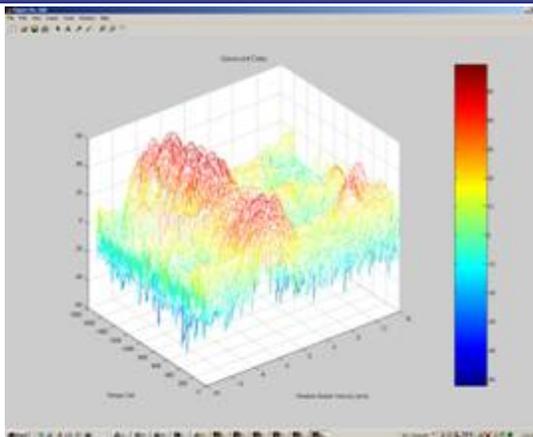
(For Official Use Only)



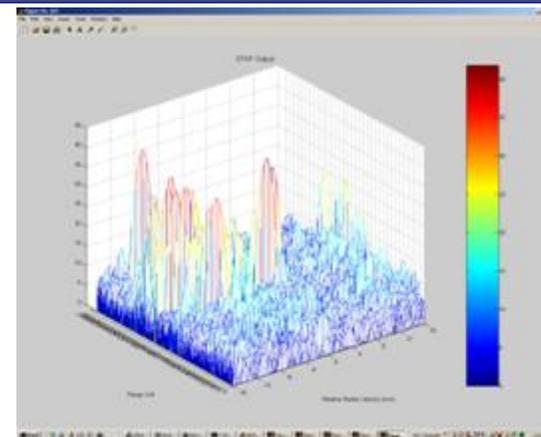
# Server Side Processing Outputs



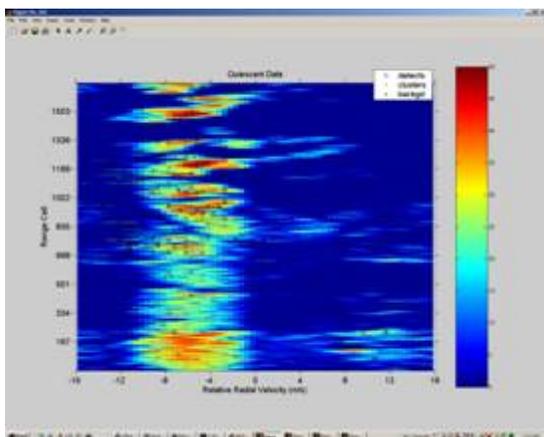
ASCOPE



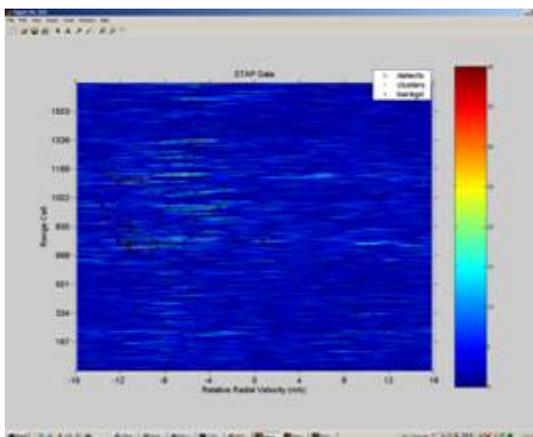
Before Clutter Suppression



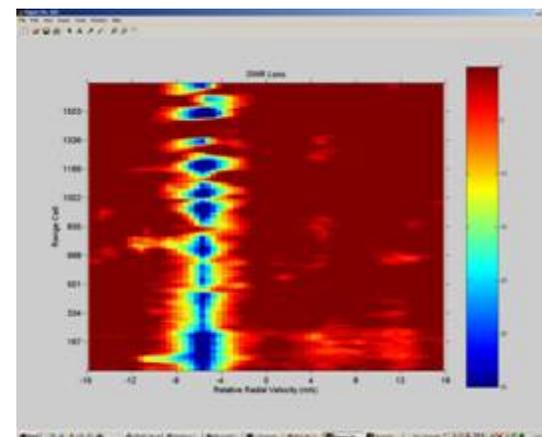
After Clutter Suppression



Before Clutter Suppression



After Clutter Suppression



Est. SINR Loss



(For Official Use Only)



# Performance Analysis Screen

SPEAR Software Testbed - Performance Analysis Screen

File Windows Help

Measures of Performance - Plot Window 1

Signal Processing Measures of Performance Off

Tracking Measures of Performance Off

Truth File Process Log Tracking Log NATOEX File

Measures of Performance - Plot Window 2

Signal Processing Measures of Performance Off

Tracking Measures of Performance Off

Truth File Process Log Tracking Log NATOEX File

NATOEX Visualization Off

Add Remove Configure

Run Visualization

Analyze Return to Main Menu



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# Analyzing Signal Processing MOPs



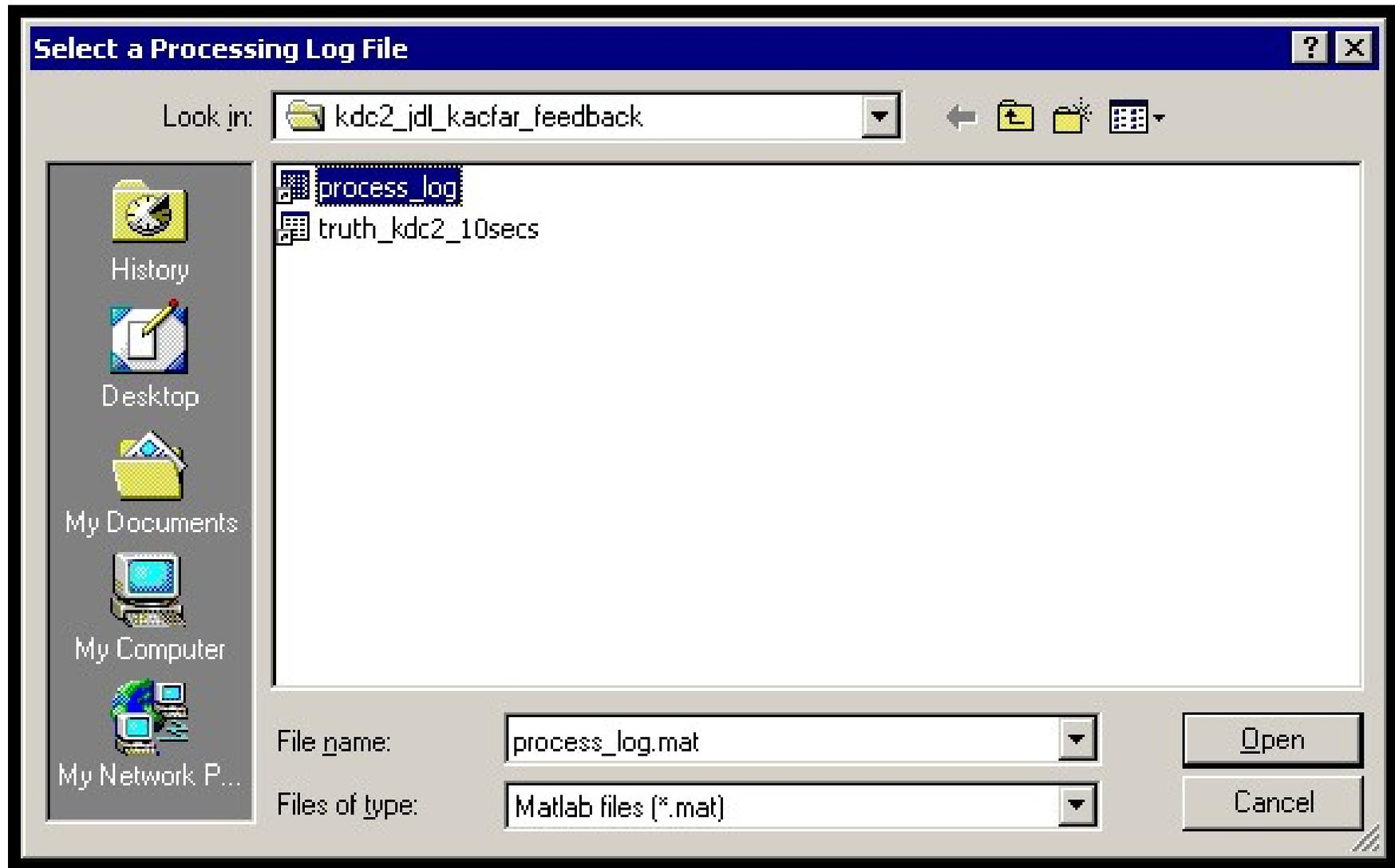
The screenshot shows a software interface titled "SPEAR Software Testbed - Performance Analysis Screen". The interface is divided into several sections:

- Measures of Performance - Plot Window 1:** Contains two toggle buttons: "Signal Processing Measures of Performance" (set to "On") and "Tracking Measures of Performance" (set to "Off"). Below these are four buttons: "Truth File", "Process Log", "Tracking Log", and "NATOEX File".
- Measures of Performance - Plot Window 2:** Contains two toggle buttons: "Signal Processing Measures of Performance" (set to "Off") and "Tracking Measures of Performance" (set to "Off"). Below these are four buttons: "Truth File", "Process Log", "Tracking Log", and "NATOEX File".
- NATOEX Visualization:** Features a large empty white box. Above it is a toggle button set to "Off". Below the box are three buttons: "Add", "Remove", and "Configure". At the bottom of this section is a "Run Visualization" button.
- Bottom Section:** Contains two large buttons: "Analyze" and "Return to Main Menu".



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# Selecting Results Files to Analyze





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# Selecting Analysis Display

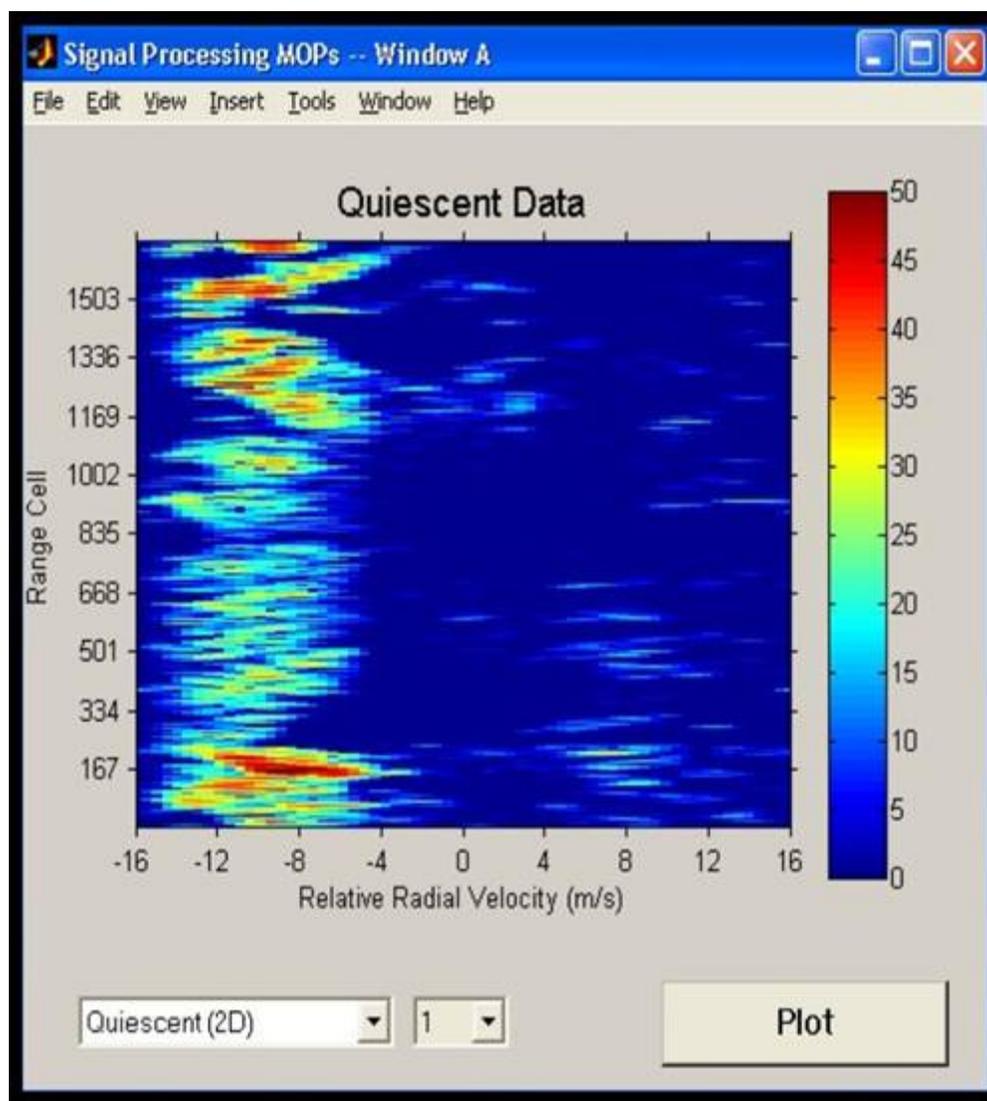
The screenshot displays the SPAR Software Testbed Performance Analysis Screen. The main window, titled "Measures of Performance - Plot Window 1", contains several control elements: "Signal Processing Measures of Performance" (On), "Tracking Measures of Performance" (Off), and "NATDEX Visualization" (Off). Below these are buttons for "Process", "Tracking", and "NATDEX". A secondary window, "Signal Processing MOPs - Window A", is overlaid on the main window. This window has a menu bar (File, Edit, View, Insert, Tools, Window, Help) and a title bar. The main content of this window is a plot area with a vertical axis from 0 to 1 and a horizontal axis from 0 to 1. Below the plot area is a dropdown menu labeled "Select New Plot" with a list of options: Azimuth Error, Cross-Range Error, False Alarms, Missed Detections, Quiescent (2D), Quiescent (3D), Range Error, Radial Velocity Error, STAP Output (2D), STAP Output (3D), SINR Loss (2D), and SINR Loss (Avg). A "Plot" button is located at the bottom right of the window.



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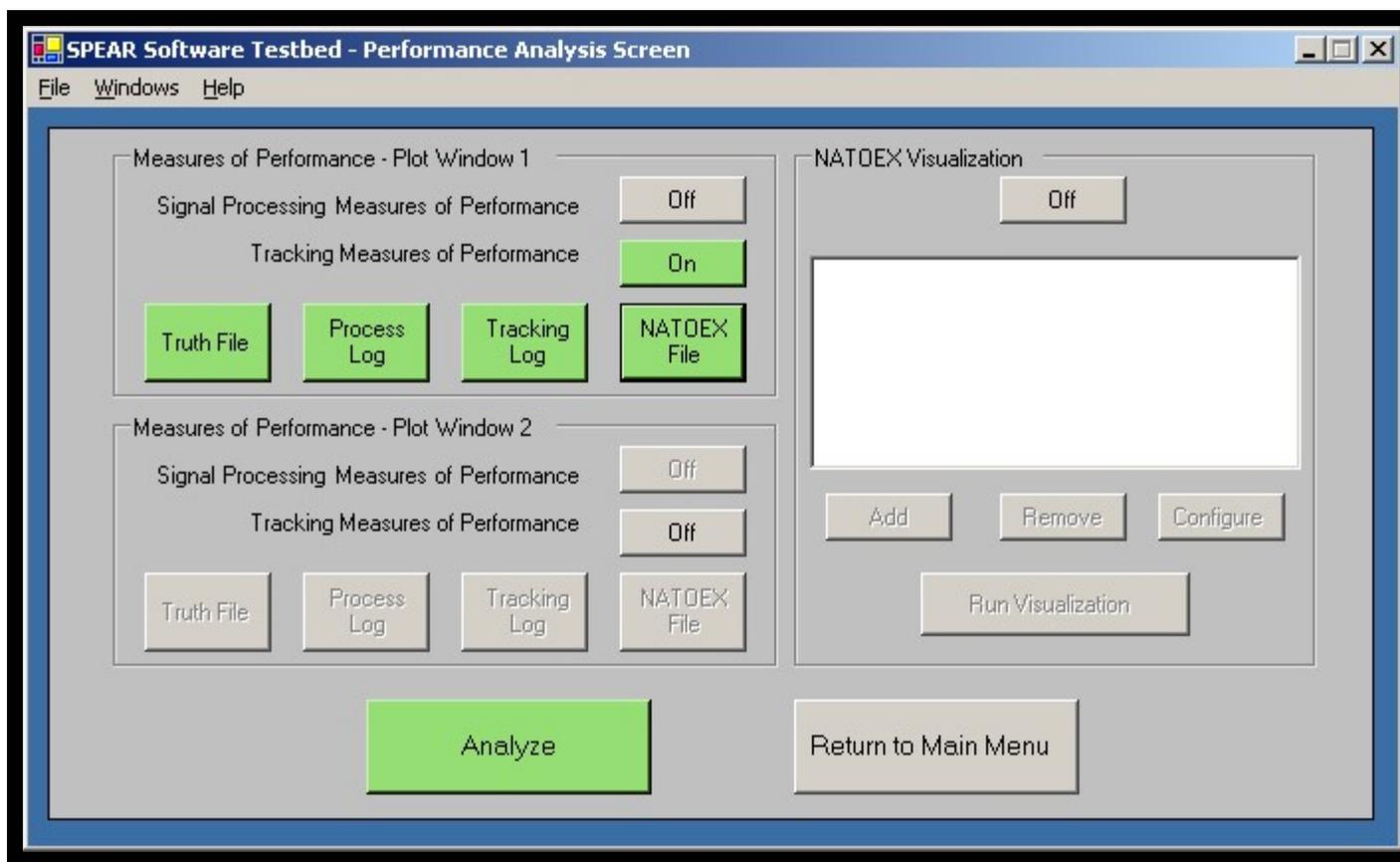
# CPI #1 Before Clutter Suppression





(For Official Use Only)

# Analyzing Tracking MOPs





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# Selecting Tracking Analysis Display

The screenshot shows the 'SPEAR Software Testbed - Performance Analysis Screen' with a 'Tracking MDP Plots - Window A' dialog box open. The dialog box contains a plot area with axes ranging from 0 to 1. Below the plot area is a dropdown menu labeled 'Select New Plot' with the following options:

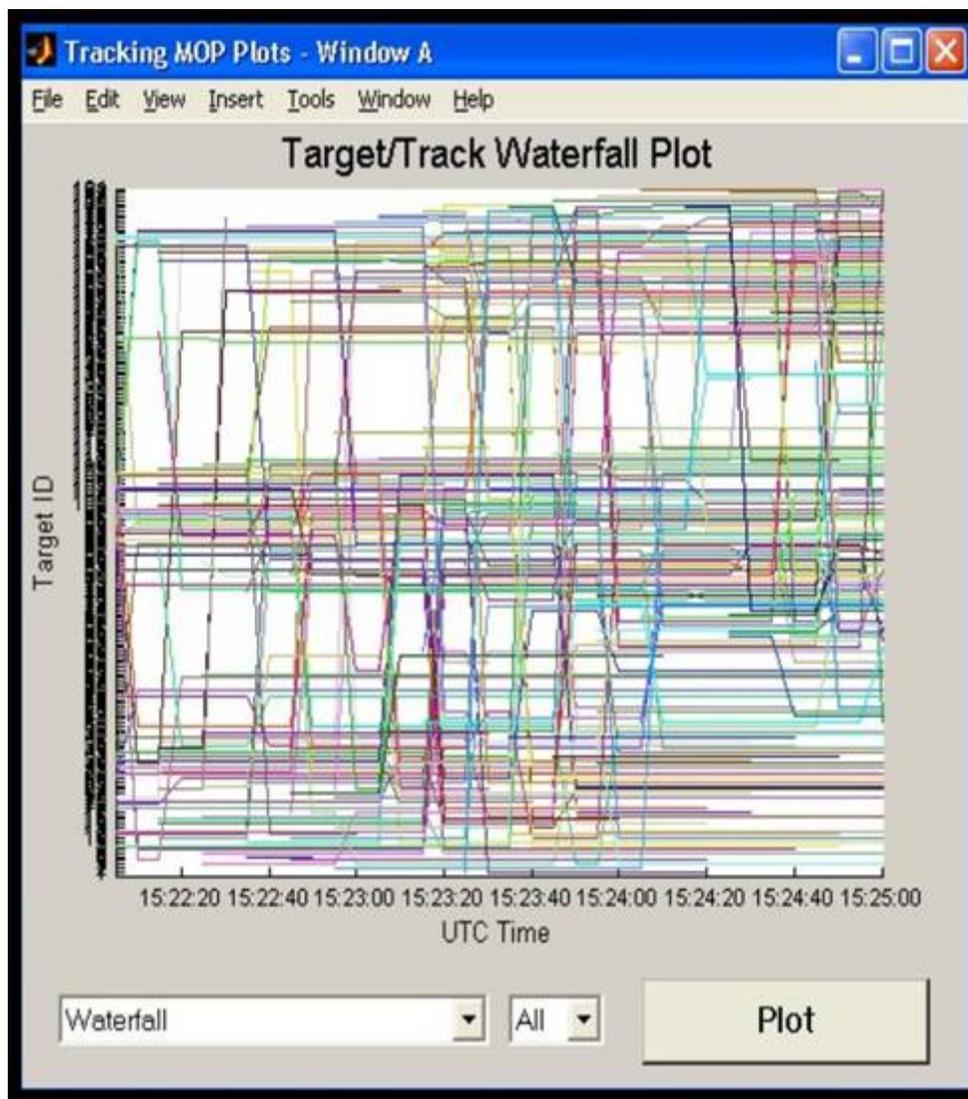
- Select New Plot ---
- Select New Plot ---
- Gap Times
- Gap Time Exceedence Curve
- Komogrov-Smirnoff
- Prob. Maintain Init. Target
- Target Continuity
- Target Purity
- Target Identity Lifetime (Histogram)
- Target Identity Lifetime (Individual)
- Target Location Errors
- Track Continuity
- Tracker Detections
- Tracker Missed Detections
- Track Purity
- Total Track Lifetime (Histogram)
- Waterfall

A 'Plot' button is located at the bottom right of the dialog box.



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# Track Waterfall Display

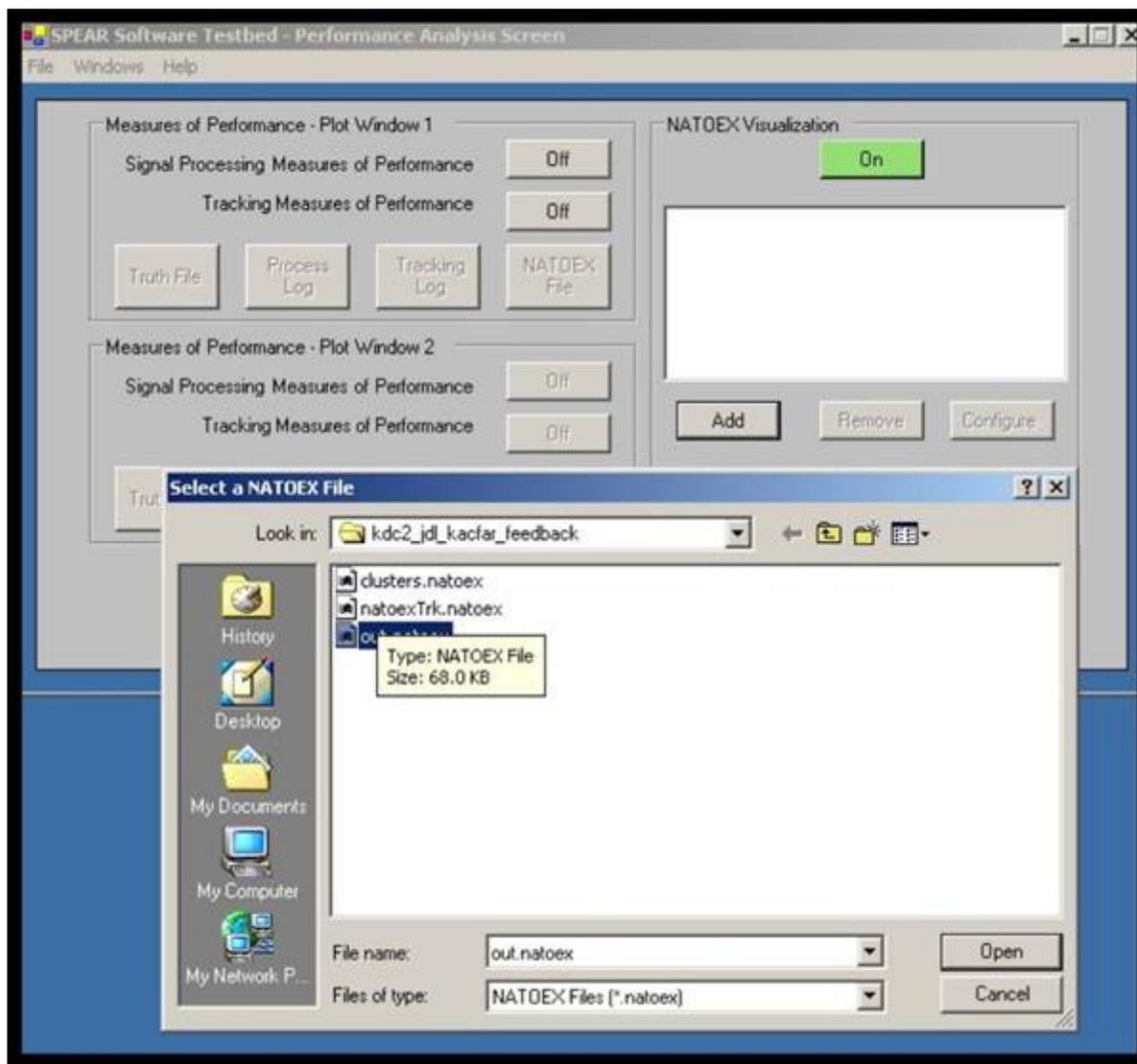




(For Official Use Only)



# Setting Up Visualization Tool





(For Official Use Only)



# Configuring Display Options

The screenshot displays the 'SPEAR Software Testbed - Performance Analysis Screen' with a 'Measures of Performance - Plot Window 1' section. A 'Signal Processing Measures of Performance' toggle is set to 'Off'. A 'NATOEX Visualization' section is active, with a toggle set to 'On'. Below this, a text box contains the file path 'G:\results\kdc2\_jdl\_kacfar\_feedback\out.natoex'. There are 'Add', 'Remove', and 'Configure' buttons, and a 'Run Visualization' button. A 'Return to Main Menu' button is also present.

Measures of Performance - Plot Window 1

Signal Processing Measures of Performance

NATOEX Visualization

G:\results\kdc2\_jdl\_kacfar\_feedback\out.natoex

**Enter Fusion Map Configuration Parameters**

NATOEX File: G:\results\kdc2\_jdl\_kacfar\_f

Color: Red

Platform: Visible

Platform Size: 5

Beam Footprint: Or

Outline: Off

Symbol: Circle

Error Ellipse: Off

Label: Off

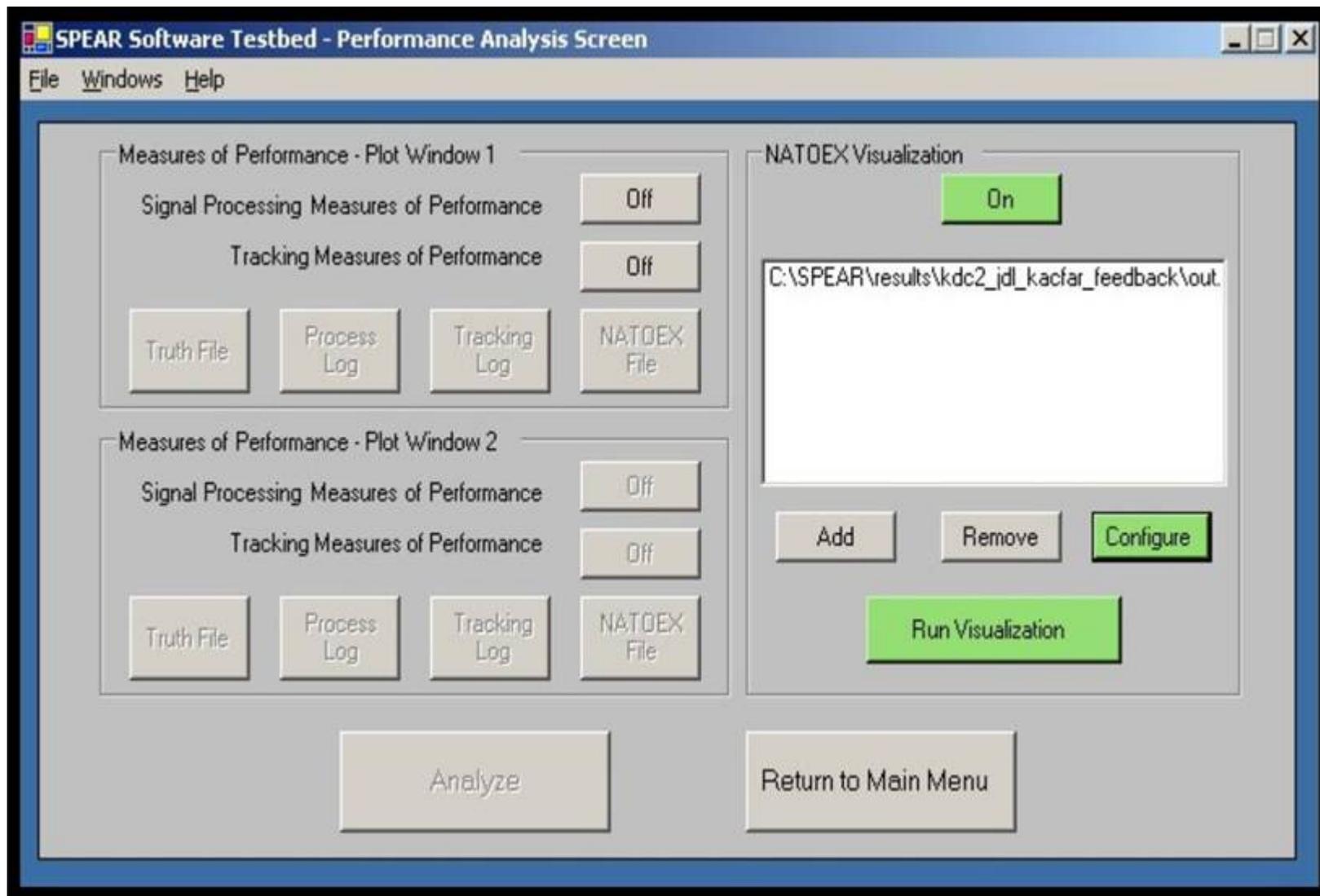
Label Size: 1



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# Ready to Run Visualization Tool





(For Official Use Only)  
**Visualization Example**



The screenshot shows a software application window with a menu bar (File, Functions, Map, Window, Help) and a toolbar. The main area is a 3D terrain map with a red track and a blue track. A 'Click for Demo' button is overlaid on the map. To the right, there is a 'Point Add Map' window showing a zoomed-in view of the map. Below that is another 'Click for Demo' button. At the bottom right, there is a 'Data Sources' window with a table and a 'Source Configuration' section.

Desc	Port	Format	Conn	Last P...	T...	Co
Latitude (000)		RATOCGRZ	DISSENA	DISSENA	DISSENA	DISSENA

Source Configuration:  
 UDP  TCP  
 Log Data  
Port:   
Add Properties

A/C & Detection Reports

Detection & Truth

The top screenshot shows a 3D terrain map with a red track and a green track. A 'Click for Demo' button is overlaid on the top left. The bottom screenshot shows the same map with a different configuration of tracks. A 'Click for Demo' button is overlaid on the bottom right.

Detections, Truth  
& Tracks



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## Summary



- **SPEAR Demo CD Available**
- **SPEAR Access Requests**
- **KASSPER Algorithm Integration & Evaluation**
- **Other SPEAR Uses (MC2A, SBR)**