

OPEN SOURCE SOFTWARE

OSS in ATM

Eurocontrol Bretigny, 7th December 2005

Agenda item #6

Revisiting CHIPS as an OSS

Presented by Jean-Dominique Frayssinoux

SUMMARY

- **INTRODUCTION**
- **OBJECTIVES OF OPEN SOURCE SOFTWARE**
- **CHIPS AS AN OPEN SOURCE SOFTWARE**
- **CHIPS OVERALL PRESENTATION**
- **EXTENSION AND IMPROVEMENT**
- **CONCLUSION**

INTRODUCTION

- **OBJECTIVES OF THIS PRESENTATION**
 - **TO EXPLAIN OBJECTIVES WITH OPEN SOURCE SOFTWARE**
 - **TO PRESENT CHIPS AS AN OPEN SOURCE SOFTWARE**
 - **TO GIVE AN OVERALL DESCRIPTION OF CHIPS SOFTWARE**
 - **TO EXPLAIN ADVANTAGE OF OPEN SOURCE SOFTWARE DISTRIBUTION**

OBJECTIVES OF OSS

- **TO DISTRIBUTE A SET OF ATM TOOLS (FREE OF CHARGE) ON INTERNET WEB SITES**
- **TO SHOW EXPERTISE IN ATM SOFTWARE AND ATM SYSTEMS**
- **TO BE IN CONTACT WITH ATM ORGANIZATIONS AND ATM COMPAGNIES**

- **TO PROPOSE ASSISTANCE AND UPGRADE (SAME POLICY THAN LINUX REDHAT)**
- **TO ORGANIZE TECHNICAL DEMONSTRATIONS**
- **TO PROPOSE OTHER DEVELOPEMENTS**

CHIPS AS AN OSS

- **WHY CHOOSE CHIPS AS AN OSS:**
 - **SMALL PROJECT (10000-20000 C++ lines)**
 - **NOT CURRENTLY USE IN EUROCONTROL BRETIGNY**
 - **EASY TO INSTALL AND TO RUN ON A PORTABLE**
 - **CHIPS RUNS WITH LINUX REDHAT (OSS)**

 - **POSSIBILITY TO ADD IMPROVEMENTS**
 - **LIVE CONNECTION WITH RADAR STATION AND ADS SOURCE**

CHIPS AS AN OSS

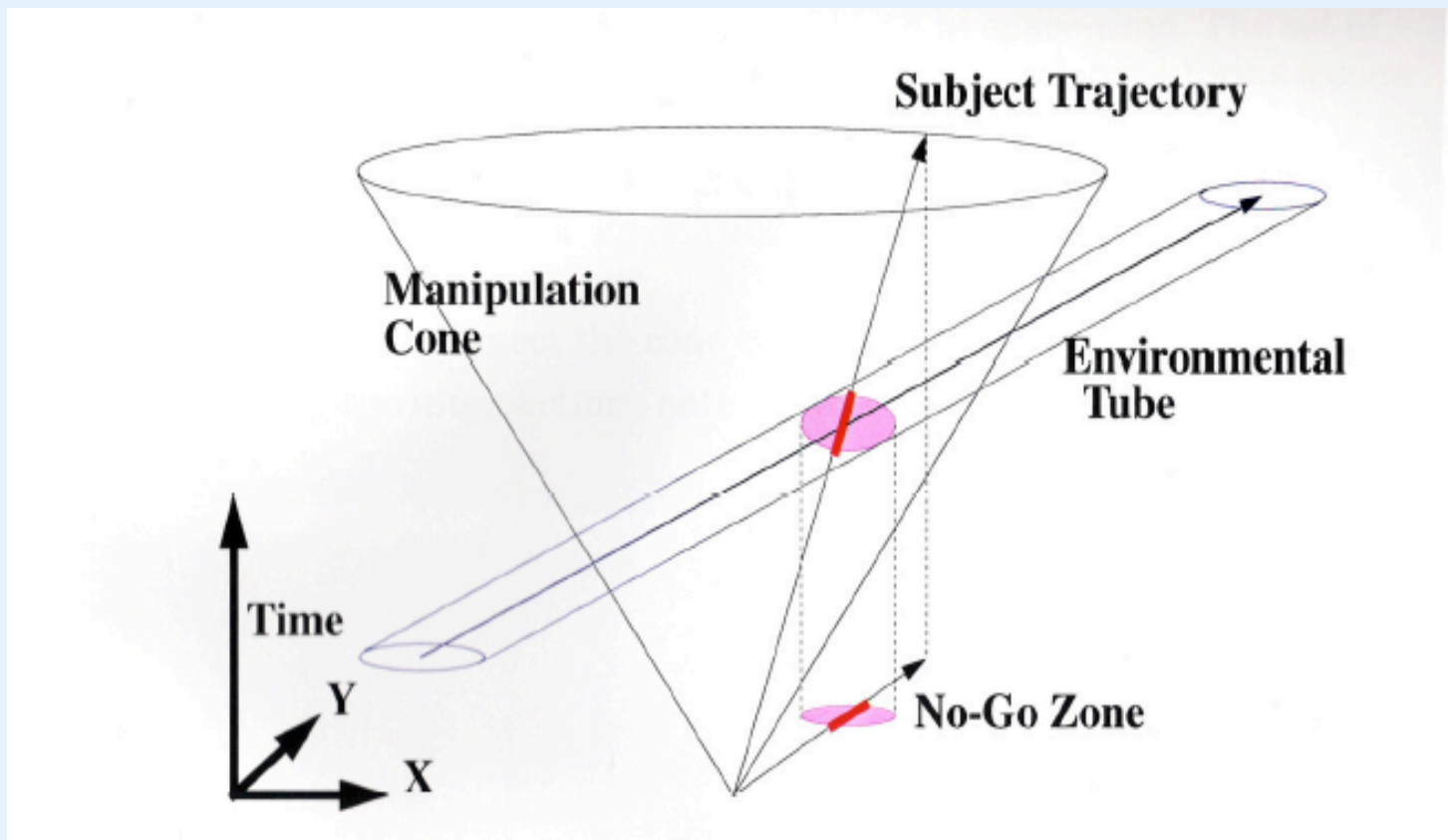
- **FIRST STEP:**
 - CHIPS IS AN OPEN SOURCE SOFTWARE
 - EXECUTABLE FILE AND CODE SOURCE ARE AVAILABLE ON INTERNET WEB SITES
 - BASIC DOCUMENTATION IS AVAILABLE
 - TO BE IN CONTACT WITH ATM ORGANIZATIONS AND ATM COMPAGNIES
- **SECOND STEP**
 - TO DO PRESENTATIONS OF CHIPS SOFTWARE
- **THIRD STEP**
 - TO PROPOSE SUPPORT AND MAINTENANCE
 - TO PROVIDE DETAILED DOCUMENTATIONS
 - TO PROPOSE SOFTWARE UPGRADE
 - TO PROPOSE NEW IMPROVEMENTS

CHIPS OVERALL PRESENTATION

- CHIPS Problem Solver is a tool that provides assistance to the controllers to enable resolution of conflicts between aircrafts.
- The Controller examines an air situation using Route window, Altitude window or Speed window. CHIPS displays no-go zones.
- The Controller evaluates one modification of one trajectory. CHIPS calculates new no-go zones after modification of this trajectory
- The controller confirms new trajectory after evaluation of a trajectory modification.

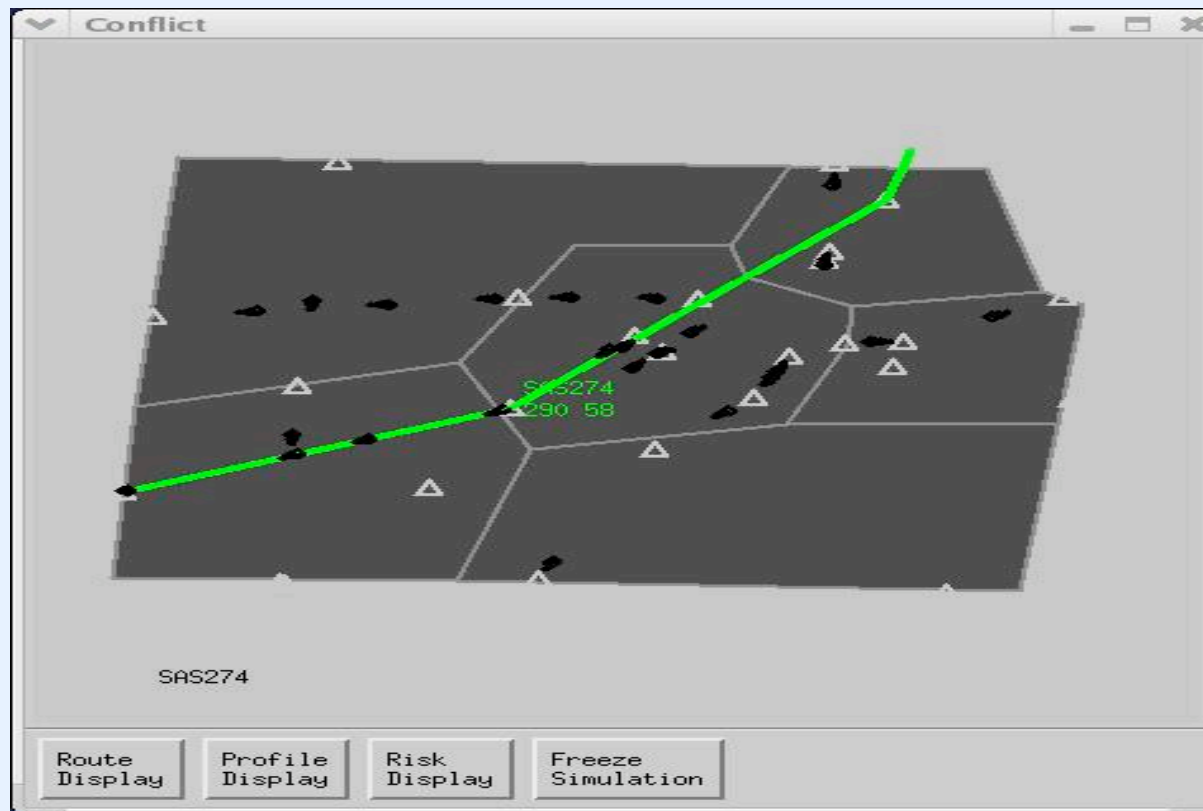
PROBLEM SOLVER CHIPS

- **NO GO ZONES:**



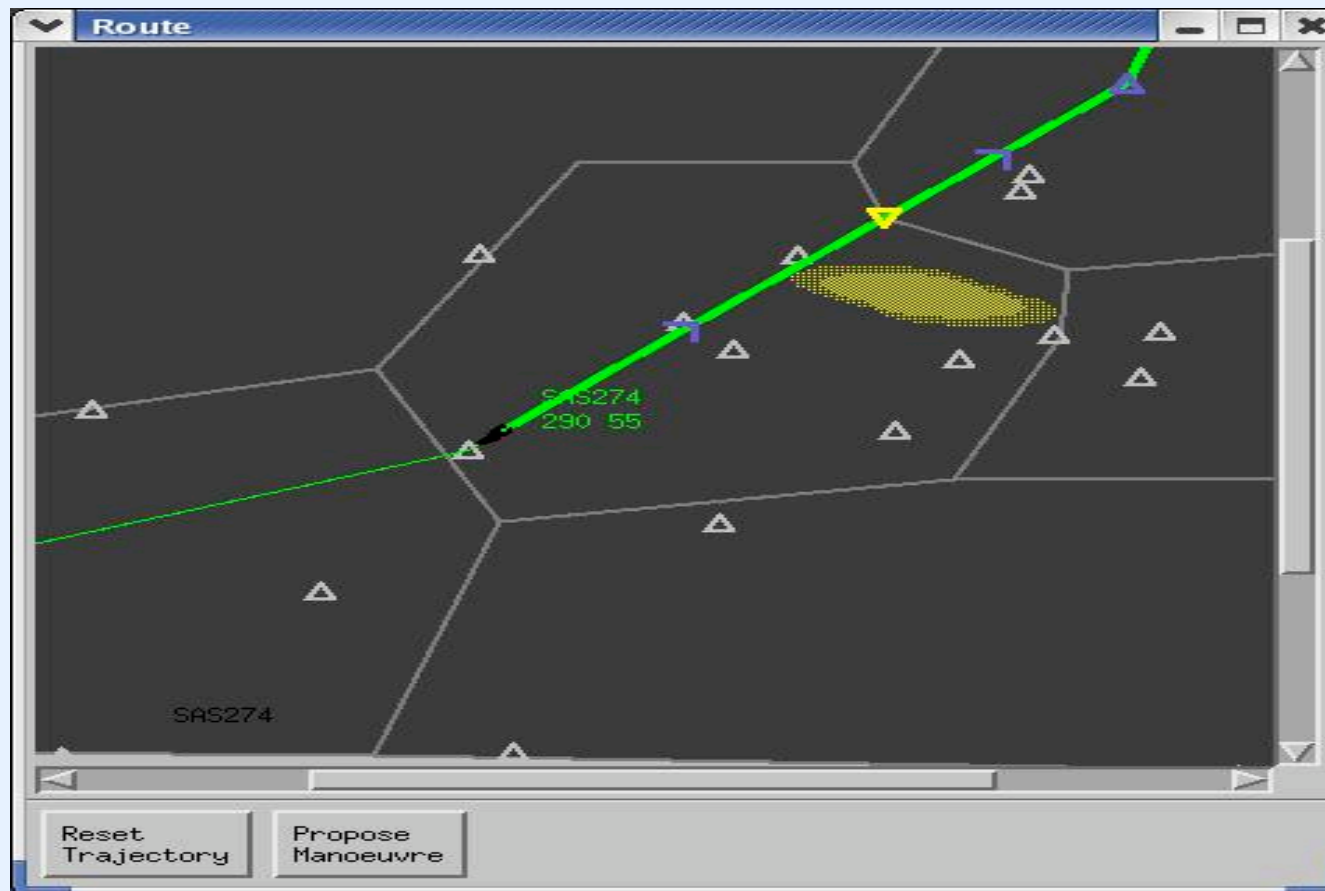
PROBLEM SOLVER CHIPS

- OVERALL DISPLAY:



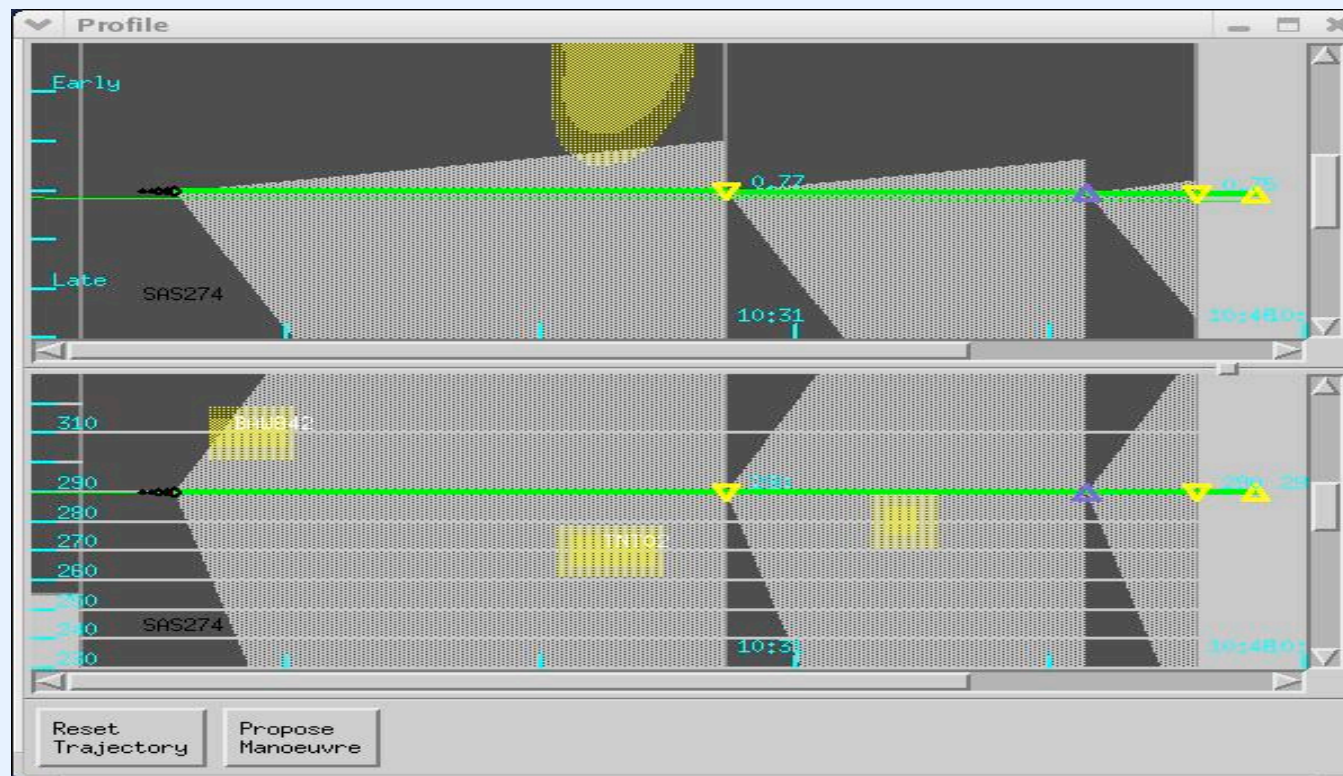
PROBLEM SOLVER CHIPS

- **ROUTE WINDOW:**



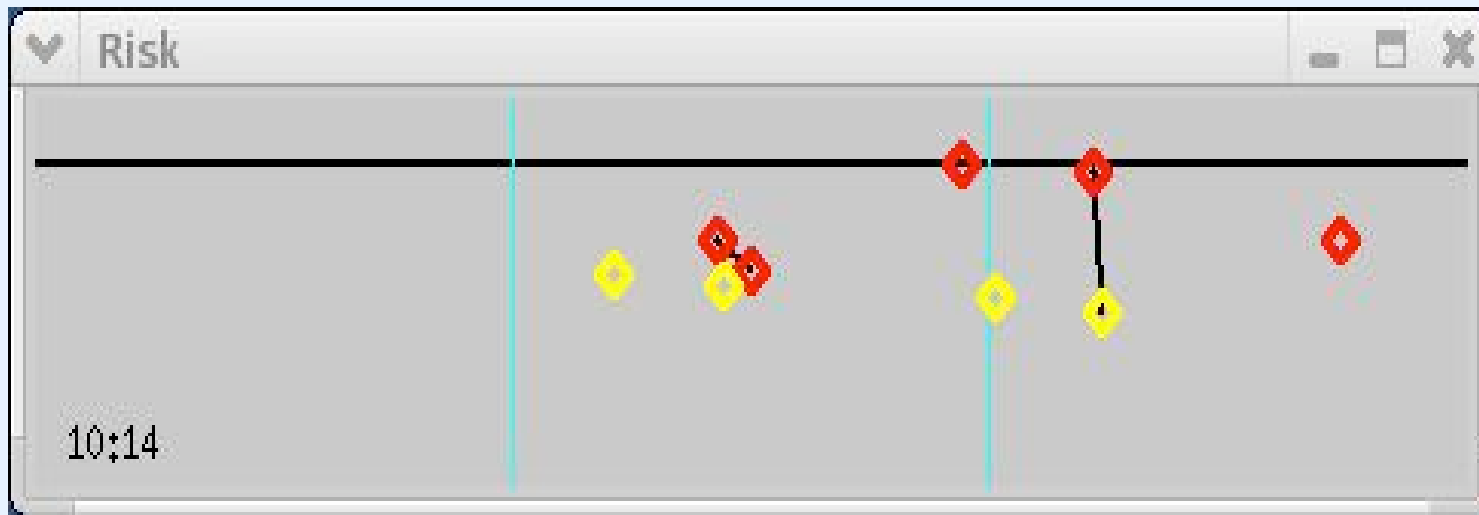
PROBLEM SOLVER CHIPS

- ALTITUDE WINDOW - SPEED WINDOW:



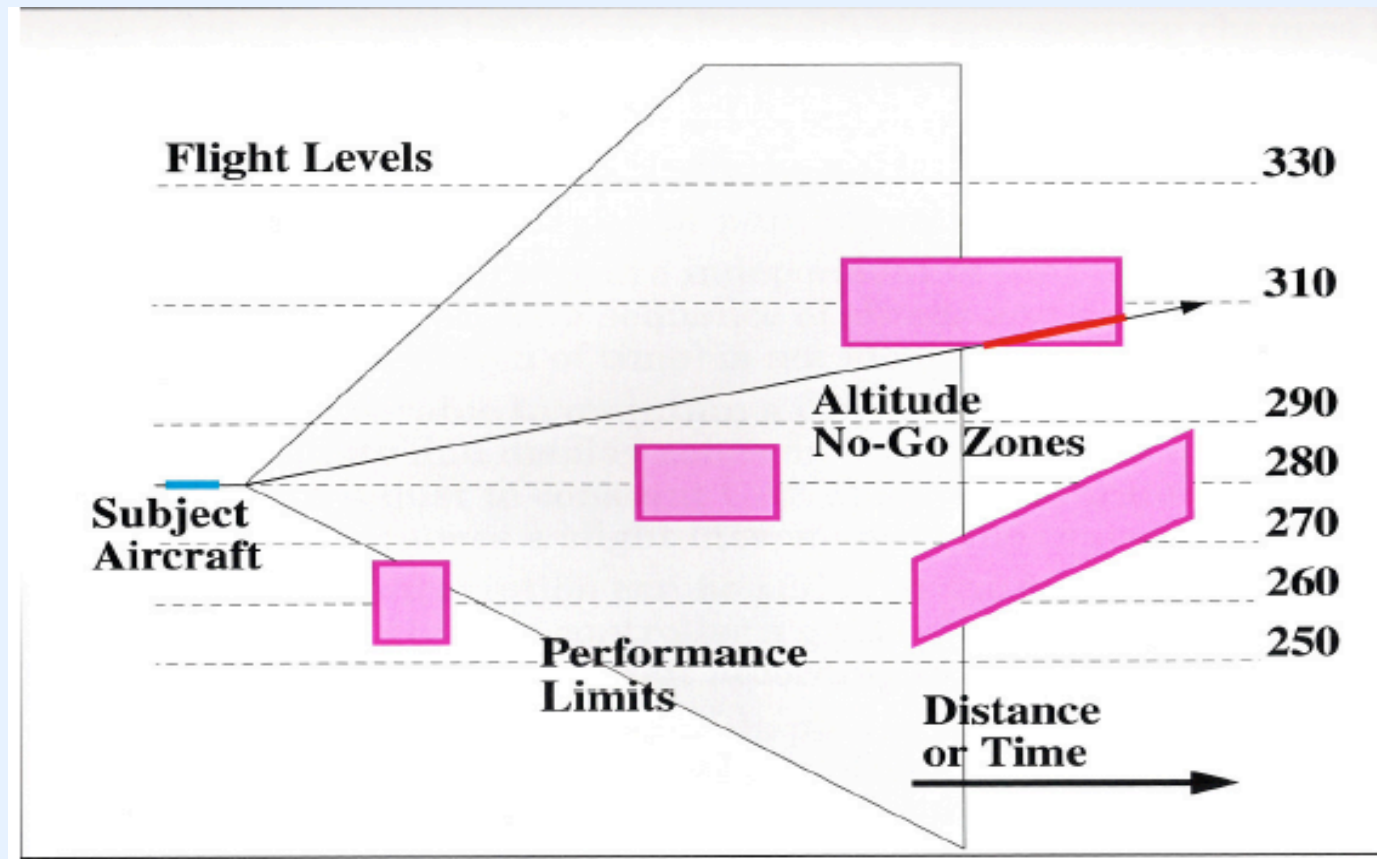
PROBLEM SOLVER CHIPS

- **RISK WINDOW:**



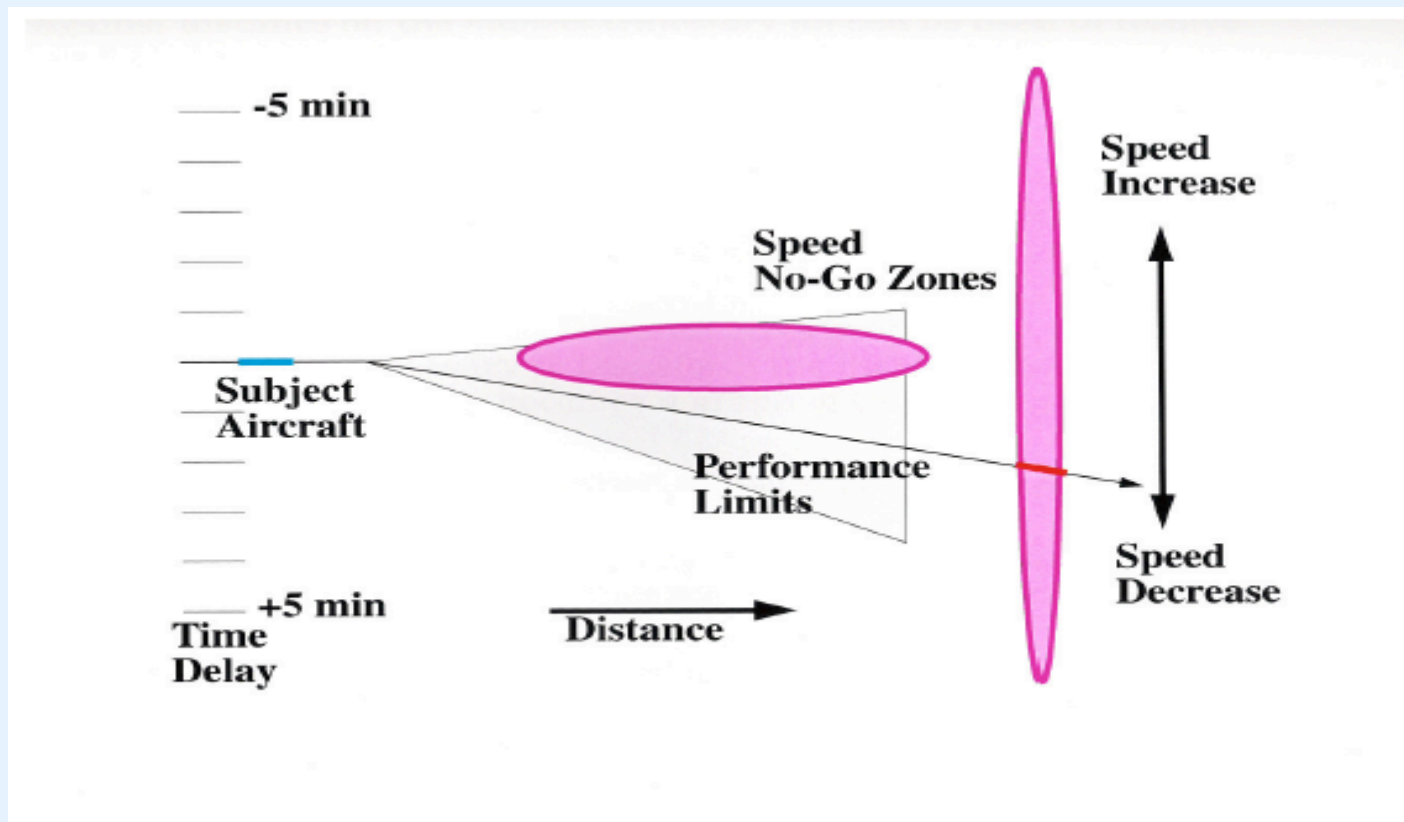
PROBLEM SOLVER CHIPS

- ALTITUDE WINDOW:



PROBLEM SOLVER CHIPS

- **SPEED WINDOW:**



EXTENSION AND IMPROVEMENTS

- **LIVE CONNECTION WITH RADAR STATION, ADS SOURCE AND FLIGHT PLAN INFORMATION**
- **LIVE CONNEXION WITH TRACKER (ARTAS)**

- **IMPROVE CURRENT DISPLAYS**
- **ADD 3-D DISPLAY**

- **COMPARISON WITH ACAS INFORMATION**
- **COMPARISON WITH OTHER CONFLICT PROBE**

CONCLUSION

- **OPEN SOURCE SOFTWARE ARE MORE INTERESTING THAN SHAREWARE OR FREeware.**
 - **USERS CAN EVALUATE SOFTWARE AND CODE SOURCE.**
 - **THERE IS NO DELAY TO PERFORM THIS EVALUATION**
- **DISTRIBUTING OPEN SOURCE SOFTWARE IS A GOOD OPORTUNITY TO BE IN CONTACT WITH ATM ORGANISATIONS OR ATM COMPAGNIES**
- **TECHNICAL PROPOSITIONS OR TECHNICAL DEMONSTRATIONS ARE EASIER AFTER DISTRIBUTING OS SOFTWARE**