LIDAR Forward-Looking Turbulence Detection System (LIDAR)
Coherent Technologies (CTI)-NASA Cooperative Research Agreement (CRA)

PROGRAM/PROJECT: Weather Accident Prevention Project
LEAD AGENCY/COLLABORATING AGENCIES: Coherent Technologies Inc. (CTI), National Aeronautics and Space Administration (NASA)
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SERVICE AREA (S)/INITIATIVE (S)

- ***National Aviation Weather Initiatives***:
  7: 9

FUNDING

- ***Programmed/Planned ($'s/FY):*** /FY03 /FY04

TYPE OF PROGRAM/APPLICATION

R&D/Prototype Demonstration

SCOPE OF PROGRAM/PROJECT

- ***What's being developed, procured, etc.:*** *LIDAR technologies to enable detection of clear air turbulence with an airborne sensor system.*
- ***How will operations be changed/improved:*** *airborne detection of clear air turbulence will enable mitigation procedures to be performed to reduce the probability of injuries caused by encounter with a turbulence event.*

PROGRAM/PROJECT MANAGEMENT

- ***Basic guidance document for this program:*** WxAP Project Plan.
- ***Program/Project verification process:*** NASA sponsored annual Weather Accident Prevention reviews, Aviation Safety Program Executive Council reviews, and reviews/audits at the project/element level.
- ***Method used for end product validation:*** Combination of (a) system-level modeling and simulations, (b) laboratory-based experiments and (c) flight experiments via appropriate industry and/or NASA research aircraft. Many of these validation efforts are performed under cost-shared cooperative research agreements with industry partners.
- ***Operational training for the user:*** Training guidance for the use of turbulence warning information will be developed in conjunction with the AvSP System Wide Accident Prevention (SWAP) project.

SCHEDULE/IMPLEMENTATION

- ***Next major program milestone:*** N/A
- ***Program becomes operational:*** WxAP develops enabling technologies that need to be implemented by industry or other government agencies. Working cooperatively with industry through CRA's will enable quicker implementation and technology transfer to meet the project safety goal.
- ***Plans for further improvements:*** Forward-looking turbulence detection systems combining both Radar and LIDAR sensing technologies will be developed and demonstrated in a flight environment.