

# ABL FOCUS



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*"Coming to a Theater Near You ... in 2003!"*

## TELESCOPE IS INSTALLED AT NEW LAB SITE

On 22 Jan 99, a \$2.5 million gimbaled telescope and dome were installed at the new Air Force Research Laboratory (AFRL) site at White Sands Missile Range, NM. The telescope is part of a system for improving the Air Force's ability to track missiles and use laser energy to destroy them. This was a major enhancement to the 8,000-foot-high North Oscura Peak site, which was developed by AFRL's



Directed Energy Directorate at Kirtland AFB, NM.

The 1-meter telescope will be used to send and receive laser light to and from the site and Salinas Peak, approximately 35 miles away. Sophisticated instrumentation will be used to measure the extent to which the Earth's atmosphere distorts the light. Then, deformable optics will be used. Built by Contraves Brashear Systems in Pittsburgh, PA, the telescope is on a mount that can revolve 360 degrees. It can be used with moving targets to simulate more realistic wartime conditions.



By June, the Air Force will be able to fire non-destructive lasers at a variety of missiles being launched at White Sands Missile Range. Although three to four missile launches may take place each year, laboratory scientists will be getting better data from a different "target" – a single-engine, propeller-driven Cessna Caravan airplane. This test aircraft will carry a scoring board. Comprised of a range of detectors, the scoring board will be able to gather greater amounts and more complete information than will be available from the missiles.

Although the ABL is designed to operate at about 40,000 feet, data collected here – at the denser air of the 8,000 to

9,000-foot elevations – will be scalable to the higher altitudes and engagements of a few hundred kilometers.

## COMMERCIAL 747-400F AIRCRAFT PAYMENT

The fifth in a series of payments for the 747-400F aircraft was made on schedule using the voucherless payment process developed by the SPO, the Defense Contract Management Command, and the Defense Accounting and Finance Service. This process allows interim commercial financing payments to be made in accordance with a pre-established contract schedule. The payments are made electronically and without the submission of invoices, eliminating at least 45 days of processing time. This payment of \$8.667M brings the total aircraft payments made to date to \$43.3M.

The 747-400 freighter "green" aircraft delivery is proceeding on schedule. The first pieces of hardware will show up on the assembly line at the Boeing-Everett facility in early June of this year. Delivery is set for 4 Jan 00, less than a year away.

## LASER IPT UPDATE

TRW started testing their 1/10th subscale laser in December to verify the performance of several "souped-up" basic hydrogen peroxide (BHP) formulations. A more concentrated mix reduces the complexity of the laser system. The tests yielded a BHP mix that works for PDRR and gets within striking distance of EMD. The testing will continue at TRW's Advanced COIL Engineering Facility and then the BHP mix will be tested as part of the flightweight laser module (FLM-3) test series.

In January, testing to verify design modifications to the laser module was completed at the subscale level at the Advanced COIL Engineering Facility. The modifications will now be implemented on the full size laser module as part of FLM-3 testing. The FLM-3 test plan includes long duration–constant power firings, testing over various concentrations of the reactants to verify the laser magazine, and unstable resonator tests to directly measure ABL beam quality. The six-week test program will conclude the first week of Apr 99.

## BMC<sup>41</sup> EFFORTS

The results of the BMDO-funded Post-Boost Tracking Study were briefed to Lt Gen Lyles and his staff and to Rear Admiral Kaler and his staff on 9 Dec 98. The result of the study shows that ABL should have sufficient post-boost

tracking capability to provide accurate cueing information to other Family of Systems weapons.

### **BEAM CONTROL/FIRE CONTROL (BC/FC) UPDATE**

The water-jetting of the primary window has been completed through cell cutting at Corning. They are now in the process of cutting the vent holes.

Two large, long-lead optics reached critical steps in their processing. The 1.5 m diameter primary mirror started out as a 1200 lb piece of glass. After lightweighting, the glass became a 120 lb lightweight core for our primary mirror. Also, the conformal window has undergone its first flow out at Corning. Corning should complete the first window by Apr 99.

### **AIRCRAFT IPT UPDATE**

The aircraft IPT completed detailed scheduling through CY99 for the 747-400F delivery in less than 11 months. Long lead items were identified to support modifications scheduled to begin immediately following delivery to Wichita, KS.

### **INDEPENDENT ASSESSMENT TEAM (IAT)**

The Congressionally-directed review team received further briefings on the ABL, including critical briefings from the Office of the Secretary of Defense/Plans, Analysis and Evaluation (OSD/PA&E) and the Institute for Defense Analyses (IDA), and visited the SPO and contractors in early January. At the conclusion of the visit, their summary comment indicated high support for the program. The IAT report was delivered to DoD in early Feb to support a 15 Feb submittal to Congress to trigger release of withheld funds required for an aircraft payment.

### **JTAMDO**

The SPO hosted Rear Admiral Kaler, Director of Joint Theater Air and Missile Defense Organization (JTAMDO), and Brig Gen Dodgen, Deputy Director of JTAMDO, in separate visits to the SPO and Boeing during January. A main characteristic of the ABL endorsed by JTAMDO is its early warning capability.

### **COMPUTING SYSTEMS ANALYSIS AND INTEGRATION TEAM (CSAIT)**

The CSAIT team held a meeting on 1-2 Dec 98 at Lockheed Martin in Sunnyvale, CA. The meeting included a review of each segment's current build schedule and the planned functionality within each build; a demonstration of the displays that support Warning, Caution, Alert (WCA) messages; a discussion of BMC<sup>4</sup>'s display architecture and the use of BxPro to generate displays.

BC/FC completed coding and unit testing of their Build 2a software, and demonstrated it on 14 Jan 99 at Sunnyvale, CA. They also demonstrated the Health and Status infrastructure and the Wavefront Control processing, and are now beginning development of their software Build 2b.

### **RESTRUCTURE UPDATE**

On 2 Dec 98, Program Budget Decision 224 realigned the funding profile to match the revised program following the FY99 congressional cut. The SPO and contractor teams are working through the specific program impacts to the PDRR program, with the completion of the restructure process slated for early 1999.

### **SPO PERSONNEL WINNERS!**

Ms Lyn Kirkwood, of the ABL SPO Program Control Division, was selected as the Space and Missile Systems Center's (SMC's) Outstanding Civilian of the Year in the GS 06 through GS 08 category. She had also been selected as Kirtland AFB's Civilian of the (4<sup>th</sup>) Quarter and winner of Civilian of the Year.

Pat Johnson, of the SPO's Management Operations Division, was presented the 1998 Communications and Information Professional of the Year Award in the junior civilian category for SMC. These are outstanding examples of the talented and dedicated people working at the ABL SPO. Congratulations, Lyn and Pat!

### **BRIEFINGS**

- On 3 Dec 98, Mr Frank Tuck, ASC Director for Development Planning, visited the SPO and received a program briefing.
- Congresswoman Heather Wilson's staffers, Luke Rose and Jane Altweis, visited the SPO on 9 Dec 98 and received an overview briefing.
- On 10 Dec 98, Brig Gen Mike Hamel, SMC/CV, visited the SPO and received an update of the program. He also visited the Capistrano Test Site on 7 Jan 99.
- The IIPT meeting on 7 Jan 99 focused on Restructure and Post Boost.
- On 8 Jan 99, Col Chuck Pinney gave a quarterly update to ACC/DR on Restructure, Post Boost, and Weight Status.
- On 11 Jan 99, SASC Staffers Eric Thoemmes, John Luddy, and Eric Womble visited the SPO. They also visited Lockheed Martin and TRW as part of the same trip.
- Col Booen briefed Mitch Kugler, staffer for Congressman Thad Cochran, at Boeing Seattle on 14 Jan 99.
- Col Booen met with Congresswoman Heather Wilson on 15 Jan 99.
- On 15 Jan 99, Col Pinney gave Lt Gen Robert Raggio, ASC/CC, a briefing on restructure, accomplishments, and transition to EMD.
- ACC briefed Gen John Jumper, USAF/CC, and EUCOM staff with an ABL overview in Germany on 19-20 Jan 99.
- On 21 Jan 99, the Live Fire Test and Evaluation Working Group met at the SPO.
- SASC staffers Fieldhouse and Creedon were briefed on the ABL 25 Jan 99.
- On 26 Jan 99, Col Booen briefed Lt Gen Lance Lord, AFSPC/CV, and staff with an ABL overview.