

CPI is a small business of 40 employees founded in 1984 that provides professional scientific and information technology (IT) services to government organizations and prime contractors. CPI performs a broad range of scientific services to understand and describe the Earth's environment from its surface to outer space, the objects in orbit, as well as the IT services required to support such activities. CPI's key areas of technical expertise include:

What We Do

Our clients' needs span every aspect of environmental research and our goal is to provide cutting edge solutions in the field of computational physics that meet or exceed our customer's expectations. These services range from providing state-of-the-art retrieval algorithm development in remote sensing, to developing and applying first principles modeling.

Services CPI Provides Include:

- Atmospheric Remote Sensing
- First Principles Modeling
- Scene Generation
- Scientific Data Distribution
- Space Situational Awareness
- IT Support

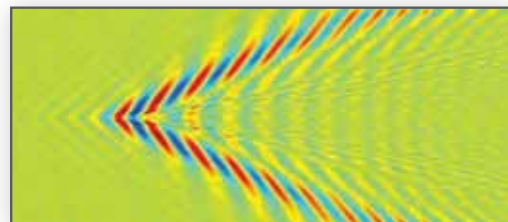
Scientific Expertise

- Remote sensing (EO/IR, microwave, SAR)
- EO/IR observables of atmosphere / clouds / terrain
- Atmospheric radiative transfer
- Charged particle transport / auroral physics / space weather
- Atmospheric internal / gravity wave physics
- Atmosphere and ocean modeling
- Ionospheric physics / radio wave propagation
- Operational satellite ground data analysis systems

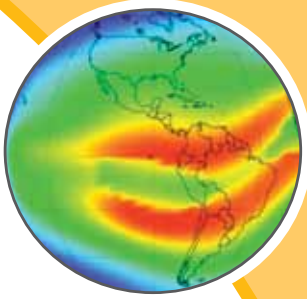
Software Engineering Expertise

- Full life-cycle software development
- Distributed scientific computing: CORBA, TENA, ESMF, MPICH
- Hardware-in-the-Loop (HWIL) simulation architectures
- Agile development practices
- Semantic sensor web development: OGC, OASIS
- Requirements analyses and verification

**Submarine
generated
internal waves
in a thermocline.**



Dayside
Ionospheric
Structure
(TEC) from
PIM model.



Primary Employee Sites

- Springfield, VA (Headquarters)
- Boulder, CO
- Naval Research Laboratory (NRL)
Washington, DC
- United States Naval
Observatory (USNO)
Washington, DC

Key Customers

- **DoD:** NRL, ONR, USNO, AFRL,
USASMD, MDA, NRO
- **Civilian Government:**
NASA, NOAA, NSF
- **Large Business:** SAIC
- **Small Business:** Riverside Technology
inc., NWRA, Kinetics (kineticsinc.com)
- **FFRDC:** Aerospace Corp.
- **University Affiliated:**
CU/LASP, UCF
- **International:**
European Space Agency,
Jülich (Germany)

Contract Vehicles

GSA Schedule for Information
Technology Professional Services

NOAA Scientific and Technical
Support Services Contract

R&D Capabilities

- Real-time modeling
and simulation
- Multi-physics model
development and application
for the Earth sciences
- Algorithm development
for remote sensing
applications
- Space Situational
Awareness (SSA)
- Ionospheric research
and global ionospheric
specification
- Radio propagation
modeling for operational
applications
- Requirements specification
and management
- Requirements analyses
and verification

Past Performance

- Twenty-five years of continuous contract support among three divisions of the Naval Research Laboratory.
- Development of industry standard first principles physics and specification models: Atmospheric Ultraviolet Radiance Integrated Code (AURIC), Boltzmann 3 Constituent (B3C) auroral electron transport, and the PRISM family of ionospheric models (PRISM, PIM, IECM).
- Development of gravity wave modeling applications that produced the first detailed mountain wave simulation for the Martian atmosphere and mountain wave forecasts for the NASA ER-2 aircraft missions.
- A long record of peer-reviewed publications which can be found at www.cpi.com/about/publications.html.
- Distributed scientific computing for missile defense physics-based modeling and simulation programs.
- Development of operational algorithms that are used for both NASA and DoD satellite missions such as Defense Meteorological Satellite Program (DMSP) and WindSat.
- Development of a data distribution center (www.cpi.com/datacenter) that utilizes a robust web application framework to support multi-dimensional queries on multi-terabyte data sets.
- Extensive experience in development and implementation of operational satellite ground data analysis systems such as WindSat and MIS for NRL and JMAPS for USNO.

**WindSat Sea
Surface Winds
in South Pacific
on Feb. 9, 2006.**

