Research Themes and Tasks

CIOSS activities are described within three categories: **Administration**, **Research**, and **Outreach**.

Administration consists of activities related to the CIOSS office and broader infrastructure, internal and external governing boards, and the relationships between CIOSS, CEOAS, OSU, NOAA/NESDIS/STAR, other NOAA components, and other academic, government and private institutions. Reports, proposals and ongoing communications between CIOSS, NOAA and other institutions are administrative duties, as are the logistical arrangements for workshops and other CIOSS-related meetings.

Research: The overarching goal of CIOSS research is to develop, evaluate, improve and use methods of ocean remote sensing and ocean-atmosphere modeling, in order to increase our understanding of the ocean and atmosphere. This goal encompasses the mutual research interests of OSU/CEOAS/CIOSS, NOAA/NESDIS and other NOAA line offices in:

1. basic research in ocean, atmosphere and marine ecosystem dynamics;
2. applications of basic research to the management of living and non-living resources within the coastal and open ocean; and
3. contributions to ocean observing and modeling systems through the evaluation of plans for future satellite systems and models.

Outreach consists of activities, undertaken by NOAA and academic partners, that link CIOSS research and its results to a broader community of students, scientists, resource managers and the general public. These activities should increase the utility of the research by making those not directly involved with the research more capable of using and benefiting from the research (accessing its conclusions, data, methods, etc.); at the same time, the activities should increase awareness of the value of the research and of the roles of NOAA and academic scientists in conducting the research. The overall goal of outreach is to give the research a "broader impact" on a wider community. Because outreach is directly related to CIOSS research, it is included as a research theme. Research into the most effective methods of outreach is also included.

Research and **Outreach** are conducted within five broad **Research Themes**:

1. **Satellite Sensors and Techniques**: Evaluation of existing and proposed satellite sensors, algorithms, and measurement techniques.

2. **Ocean-Atmosphere Fields and Fluxes**: Development, evaluation and analysis of improved fields of physical and biological parameters in the upper ocean, and of surface parameters and fluxes at the air-sea interface, using combinations of remote sensing, in situ data and modeling.

3. **Ocean-Atmosphere Models and Data Assimilation**: Use of satellite-derived fields to force and evaluate numerical models of the oceanic and atmospheric circulation, including the assimilation of those fields using methods of inverse modeling. For some applications, the ocean models will include components of marine ecosystems.

4. **Ocean-Atmosphere Analyses**: Dynamical and statistical analyses of data sets derived from satellites, models and in situ instruments, in order to increase our understanding of the physical, chemical, biological, geological and societal processes that affect and are affected by the ocean-atmosphere system.

5. **Outreach**: We include three broad Outreach areas, each to be related to CIOSS research and its results.

    a. **Formal Education** of students (K-12, undergraduate and graduate students), other scientists, resource managers and the general public in aspects of oceanography, surface meteorology and the use of remotely sensed data sets and numerical models. Short courses and training workshops are included in this category, as are workshops designed to develop or evaluate present and planned sensors and techniques.

    b. **Informal Education** of the same groups in the same subjects, but in contexts outside of the formal educational system, short courses and workshops. This may take the form of web-based material, presentations, forums, and exhibits at public science museums.

    c. **Data Access** includes activities that enhance the use of data sets derived from satellites and models by research scientists, students, educators, resource managers and the general public.

Division of Activities into Three Tasks:

CIOSS uses a simple structure to partition activities into three "tasks," as do most of the NOAA CIs. Task I involves NOAA/NESDIS's basic support for the administration and general operations of CIOSS, including outreach, using core funding. Task II and III consist of research and additional outreach projects, differentiated by the degree of collaboration with NOAA personnel.

Task I: CIOSS Core Office Administration and Outreach
Provides general administrative support for CIOSS research and core outreach activities (all Themes). Task I includes but is not limited to the following activities:

- General operation of CIOSS, including providing salaries for the Administrative Program Specialist, Director, and other administrative staff members;

- Necessary funding for domestic and international travel for the Director and other CIOSS staff, Fellows and participants in CIOSS workshops;
- Publication of the annual and other reports, newsletters, articles, brochures, etc.;
- Outreach activities supported by the annual core funding from STAR/SOCD, primarily the organization of workshops and short courses, sponsored or hosted by CIOSS. CIOSS may also help to organize workshops sponsored by other agencies, on topics included in the CIOSS Research Themes.

Task II: CIOSS Research and Additional Outreach with Close NOAA Collaboration

Provides support for research projects consistent with CIOSS' Research and Outreach Themes, if the projects involve substantial collaborations with NOAA colleagues; these include support for outreach beyond that covered in Task I, when NOAA personnel are involved. Details of these projects are developed in each proposal, as specific opportunities are identified.

Task III: CIOSS Research and Outreach with Limited NOAA Collaboration

Provides support for research projects in CIOSS' Research and Outreach Themes, similar to those in Task II, in which collaboration with and participation by NOAA personnel are not substantial. Details of these projects are also developed in each proposal, as specific opportunities are identified.