

# ***RAL/MMM Seminar***



**NCAR**

---

---

## **Observing System Simulation Experiments and Model Development Activities at the Goddard Laboratory For Atmospheres**

by

**Dr. Robert Atlas, Chief Meteorologist  
NASA Goddard Space Flight Center**

*Tuesday, 5 Jul 2005*

*Foothills Lab, Building 2, Auditorium, Room 1022, 3:30 p.m.*

Since the advent of meteorological satellites in the 1960's, a considerable research effort has been directed toward the design of space-borne meteorological sensors, the development of optimal methods for the utilization of these data, and an assessment of the influence of existing satellite data and the potential influence of future satellite observations on numerical weather prediction. This has included both Observing System Experiments (OSEs) and Observing System Simulation Experiments (OSSEs). OSEs are conducted to evaluate the impact of specific observations or classes of observations on analyses and forecasts. While OSEs are performed with existing data, OSSEs are conducted to evaluate the potential for future observing systems to improve NWP, as well as to evaluate trade-offs in observing system design, and to develop and test improved methods for data assimilation. This seminar will describe current OSSE methodology, present results from OSSEs to determine the potential impact of space-based lidar winds, summarize results from OSEs to evaluate satellite data sets that have recently become available to the global observing system, such as AIRS and SeaWinds, and describe recent developments of the finite volume General Circulation Model (fvGCM) that relate to OSSEs, satellite data assimilation, and hurricane prediction.

# ***RAL/MMM Seminar***



**NCAR**

---

---

## **Observing System Simulation Experiments and Model Development Activities at the Goddard Laboratory For Atmospheres**

by

**Dr. Robert Atlas, Chief Meteorologist  
NASA Goddard Space Flight Center**

*Tuesday, 5 Jul 2005*

*Foothills Lab, Building 2, Auditorium, Room 1022, 3:30 p.m.*

Since the advent of meteorological satellites in the 1960's, a considerable research effort has been directed toward the design of space-borne meteorological sensors, the development of optimal methods for the utilization of these data, and an assessment of the influence of existing satellite data and the potential influence of future satellite observations on numerical weather prediction. This has included both Observing System Experiments (OSEs) and Observing System Simulation Experiments (OSSEs). OSEs are conducted to evaluate the impact of specific observations or classes of observations on analyses and forecasts. While OSEs are performed with existing data, OSSEs are conducted to evaluate the potential for future observing systems to improve NWP, as well as to evaluate trade-offs in observing system design, and to develop and test improved methods for data assimilation. This seminar will describe current OSSE methodology, present results from OSSEs to determine the potential impact of space-based lidar winds, summarize results from OSEs to evaluate satellite data sets that have recently become available to the global observing system, such as AIRS and SeaWinds, and describe recent developments of the finite volume General Circulation Model (fvGCM) that relate to OSSEs, satellite data assimilation, and hurricane prediction.

# ***RAL/MMM Seminar***



**NCAR**

---

---

## **Observing System Simulation Experiments and Model Development Activities at the Goddard Laboratory For Atmospheres**

by

**Dr. Robert Atlas, Chief Meteorologist  
NASA Goddard Space Flight Center**

*Tuesday, 5 Jul 2005*

*Foothills Lab, Building 2, Auditorium, Room 1022, 3:30 p.m.*

Since the advent of meteorological satellites in the 1960's, a considerable research effort has been directed toward the design of space-borne meteorological sensors, the development of optimal methods for the utilization of these data, and an assessment of the influence of existing satellite data and the potential influence of future satellite observations on numerical weather prediction. This has included both Observing System Experiments (OSEs) and Observing System Simulation Experiments (OSSEs). OSEs are conducted to evaluate the impact of specific observations or classes of observations on analyses and forecasts. While OSEs are performed with existing data, OSSEs are conducted to evaluate the potential for future observing systems to improve NWP, as well as to evaluate trade-offs in observing system design, and to develop and test improved methods for data assimilation. This seminar will describe current OSSE methodology, present results from OSSEs to determine the potential impact of space-based lidar winds, summarize results from OSEs to evaluate satellite data sets that have recently become available to the global observing system, such as AIRS and SeaWinds, and describe recent developments of the finite volume General Circulation Model (fvGCM) that relate to OSSEs, satellite data assimilation, and hurricane prediction.

# ***RAL/MMM Seminar***



**NCAR**

---

---

## **Observing System Simulation Experiments and Model Development Activities at the Goddard Laboratory For Atmospheres**

by

**Dr. Robert Atlas, Chief Meteorologist  
NASA Goddard Space Flight Center**

*Tuesday, 5 Jul 2005*

*Foothills Lab, Building 2, Auditorium, Room 1022, 3:30 p.m.*

Since the advent of meteorological satellites in the 1960's, a considerable research effort has been directed toward the design of space-borne meteorological sensors, the development of optimal methods for the utilization of these data, and an assessment of the influence of existing satellite data and the potential influence of future satellite observations on numerical weather prediction. This has included both Observing System Experiments (OSEs) and Observing System Simulation Experiments (OSSEs). OSEs are conducted to evaluate the impact of specific observations or classes of observations on analyses and forecasts. While OSEs are performed with existing data, OSSEs are conducted to evaluate the potential for future observing systems to improve NWP, as well as to evaluate trade-offs in observing system design, and to develop and test improved methods for data assimilation. This seminar will describe current OSSE methodology, present results from OSSEs to determine the potential impact of space-based lidar winds, summarize results from OSEs to evaluate satellite data sets that have recently become available to the global observing system, such as AIRS and SeaWinds, and describe recent developments of the finite volume General Circulation Model (fvGCM) that relate to OSSEs, satellite data assimilation, and hurricane prediction.

# ***RAL/MMM Seminar***



**NCAR**

---

---

## **Observing System Simulation Experiments and Model Development Activities at the Goddard Laboratory For Atmospheres**

by

**Dr. Robert Atlas, Chief Meteorologist  
NASA Goddard Space Flight Center**

*Tuesday, 5 Jul 2005*

*Foothills Lab, Building 2, Auditorium, Room 1022, 3:30 p.m.*

Since the advent of meteorological satellites in the 1960's, a considerable research effort has been directed toward the design of space-borne meteorological sensors, the development of optimal methods for the utilization of these data, and an assessment of the influence of existing satellite data and the potential influence of future satellite observations on numerical weather prediction. This has included both Observing System Experiments (OSEs) and Observing System Simulation Experiments (OSSEs). OSEs are conducted to evaluate the impact of specific observations or classes of observations on analyses and forecasts. While OSEs are performed with existing data, OSSEs are conducted to evaluate the potential for future observing systems to improve NWP, as well as to evaluate trade-offs in observing system design, and to develop and test improved methods for data assimilation. This seminar will describe current OSSE methodology, present results from OSSEs to determine the potential impact of space-based lidar winds, summarize results from OSEs to evaluate satellite data sets that have recently become available to the global observing system, such as AIRS and SeaWinds, and describe recent developments of the finite volume General Circulation Model (fvGCM) that relate to OSSEs, satellite data assimilation, and hurricane prediction.