Quick Facts
The weather risk group at Risk Management Solutions (RMS) is using the IMSL C Numerical Libraries to develop pricing for weather derivatives based on variables such as temperature and precipitation. They have added the IMSL C Library subroutines to existing routines and have been able to use them together without any compatibility issues.

The Problem
Risk Management Solutions is the world's largest provider of products and services for the quantification and management of natural hazard risks. It offers technology for the management of insurance catastrophe risk in the property and casualty insurance industry, and has recently expanded its services to include risk modeling for weather derivatives.

The company's weather risk group delivers its solutions through the Climetrix application, an ASP-based product, which includes pricing models for analysis of weather risk data using proprietary algorithms. Climetrix helps transform weather data into prices for weather derivatives, insurance products, or other types of contracts that can be used to hedge weather risk.

The weather data and pricing analysis created by Climetrix is important to many different types of companies. Any company whose business success is impacted by the weather may turn to RMS for help.

For example, energy companies often generate too much or too little energy depending on the weather or season. When they are interested in buying or selling the energy they have or need, they turn to the Weather Risk Group at RMS for price analysis. Other examples include agricultural trade entities, ski equipment companies interested in buying insurance based on how much snowfall will occur in the winter months, and concert stadiums buying insurance for possible losses sustained due to rain during a performance.

The developers of Climetrix were interested in expanding their product's ability to provide the most reliable and timely analysis of weather data to create pricing models. In particular, they were interested in efficient and proven multi-threading capability for optimizing their results. Until the implementation of the IMSL C Library, the group built and maintained all of its own algorithms, but realized that a lot of time was spent on these efforts. In addition, some of the older optimization algorithms were not as efficient as they could be, and the group was looking for improved multi-threading capabilities. They wanted a stable and reliable solution that would easily integrate into their existing systems, and algorithms that were fully tested so they would not need to develop, maintain and document their own set of routines.
An IMSL® C Numerical Library Case Study

“The Solution

The Director of Product Development for Climetrix, Anju Gupta, turned to the IMSL C Library from Rogue Wave Software to solve their problem. Due to Rogue Wave’s long history in mathematical and statistical analysis, Gupta was confident that RMS could trust the IMSL C Library algorithms to enhance their application. As they began to replace some of their own subroutines with those from Rogue Wave, their main concern was compatibility. Gupta says, “The main question was whether the routines would be able to work in the environment that we use for our product. We were extremely pleased to find that once the IMSL C subroutines were put into the system, there weren’t any compatibility problems or bugs. The routines worked together perfectly.”

Anju Gupta,
Director of Product Development
Weather Risk Group, RMS

Return On Investment

Currently, Gupta and her team at RMS have begun to replace some of their algorithms with the IMSL C routines. The new techniques and algorithms available in the libraries are expected to improve and advance the success of the Climetrix product, and the team welcomes the reliability, stability, and compatibility it provides.

They will continue to implement and test the algorithms and expect to see increased savings in time and money as they move forward. Gupta explained that they are thinking about sharing the technology with other groups within RMS: “Other groups that work on catastrophe risk, earthquakes and floods could see the same improvements and benefits that we have experienced with the IMSL C Library.”

About Rogue Wave Software

Rogue Wave Software, Inc. is the largest independent provider of cross-platform, embeddable libraries and development tools for HPC application design, testing and deployment, empowering software developers to take advantage of the performance and scalability that multi-core and parallel technologies offer. Rogue Wave’s HPC tools and components have been proven by decades of use in solving some of the world’s most complex problems in commercial enterprise, academia, defense, and institutional research. With its acquisitions of Visual Numerics, TotalView Technologies, and Acumem, Rogue Wave is the foremost single source for HPC development solutions in the market today.