PREFACE

The twelfth workshop in the series on the "Use of High Performance Computing in Meteorology" was held the week of 30th October to 3rd November 2006 at the European Centre for Medium Range Weather Forecasts, in Reading, UK. This workshop received talks mainly from meteorological scientists, computer scientists and computer manufacturers with the purpose of sharing their experience and stimulating discussion. Presentations from this workshop can be found at,

http://www.ecmwf.int/newsevents/meetings/workshops/2006/high_performance_computing-12th/presentations.html

High performance computing in meteorology continues to demand the fastest commercially available computers with thousands of scalar processors or hundreds of vector processors. In 1982 ECMWF's first Cray-1 computer achieved a sustained performance of 50 Mflops. Today the sustained performance is 4 Teraflops averaged over the key applications at ECMWF, an increase of 80,000 in some 25 years. Will computer vendors continue to pull off the magic of the past 25 years and deliver systems 80,000 times faster in the next 25 years? Or will power consumption ultimately constrain performance by then?

On a more practical level, will our applications be able to run efficiently on computers that have just ten times the number of processors that we use today?

During the week of this workshop a number of talks considered these issues while others presented on areas of Linux clusters, parallel algorithms and updates from meteorological organisations. The papers in these proceedings present the state of the art in the use of parallel processors in the fields of meteorology, climatology and oceanography.

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