



# Modern Fortran in Practice

*By Arjen Markus*

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From its earliest days, the Fortran programming language has been designed with computing efficiency in mind. The latest standard, Fortran 2008, incorporates a host of modern features, including object-orientation, array operations, user-defined types, and provisions for parallel computing. This tutorial guide shows Fortran programmers how to apply these features in twenty-first-century style: modular, concise, object-oriented, and resource-efficient, using multiple processors. It offers practical real-world examples of interfacing to C, memory management, graphics and GUIs, and parallel computing using MPI, OpenMP, and coarrays. The author also analyzes several numerical algorithms and their implementations and illustrates the use of several open source libraries. Full source code for the examples is available on the book's Web site.

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## Modern Fortran in Practice By Arjen Markus Bibliography

- Rank: #1080152 in eBooks
- Published on: 2012-06-18
- Released on: 2012-11-19
- Format: Kindle eBook

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## **Editorial Review**

### **Review**

"A language cannot survive without a means to learn about it. This implies the availability not only of textbooks on the language's syntax and semantics but also of books on how to use the language in real-life situations. Somehow, experience in the use and application of a language needs to be passed on to a new generation of programmers and new features require advice on how they are best to be used. Here, at a time when only rarely is a single language used in isolation, but more often in conjunction with other languages or with various tools, Modern Fortran in Practice fulfills a real need for practical advice in the field. I recommend it to all Fortran practitioners."

from the foreword by Michael Metcalf

"Scientists, mathematicians, and engineers will find that Modern Fortran in Practice speaks their language. Arjen Markus introduces modern Fortran features using real-world examples and practical advice. If your knowledge of Fortran stops at FORTRAN-77 or even Fortran 90, Markus's book will open your eyes to what today's Fortran can do for you."

Steve Lionel, Senior Member Technical Staff, Intel Corporation

"Modern Fortran in Practice shows by practical examples how reliable and maintainable programs can be written. Starting with examples in Fortran 95, Fortran 2003/2008 features are then introduced and used to improve the code, thus showing different approaches but also providing a solution for older compilers. The author covers the whole development - from algorithm choice and error handling to graphical interfaces, parallelization, and unit testing. The book is an ideal complement to books that focus on the syntax of Fortran."

Tobias Burnus, Institute of Solid State Research, Research Centre Jülich

### **About the Author**

Arjen Markus is a senior consultant at Deltares, an institute for applied research in the field of water, subsurface and infrastructure in the Netherlands, where he develops and maintains their numerical modelling programs and the tools that accompany them. He is an active contributor to the ACM newsletter Fortran Forum and the comp.lang.fortran newsgroup.

## **Users Review**

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As people who live in the actual modest era should be change about what going on or details even knowledge to make these people keep up with the era that is certainly always change and advance. Some of you maybe may update themselves by looking at books. It is a good choice to suit your needs but the problems coming to anyone is you don't know which one you should start with. This Modern Fortran in Practice is our recommendation so you keep up with the world. Why, because book serves what you want and wish in this era.

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