Wave equation modelling using Julia programming language

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Julia is a young high-performance dynamic programming language for scientific computations. It provides an extensive mathematical function library, a clean syntax and its own parallel execution model. We developed 2d wave equation modeling programs using Julia and C programming languages and compared their performance. We used the same modeling algorithm for the two modeling programs. We used Julia version 0.3.9 in this comparison. We declared data type of function arguments and used inbounds macro in the Julia program. Numerical results showed that the C programs compiled with Intel and GNU compilers were faster than Julia program, about 18% and 7%, respectively. Taking the simplicity of dynamic programming language into consideration, Julia can be a novel alternative of existing statically typed programming languages.