In this talk, I will present ongoing work on the optimization and maintenance of the RAMSES code, a widely used community code for astrophysical simulations.

Within the context of the RAMSES SNO, we aim to bring the code up to modern software development standards. To ensure robustness, we have significantly extended the test suite and increased its coverage. To improve onboarding and developer experience, new documentation has been introduced.

On the performance side, I will present results obtained in the framework of the SPACE EuroHPC Centre of Excellence. In particular, the addition of OpenMP hybrid parallelization improves scalability on modern architectures while reducing memory requirements. The impact of these optimizations is assessed through extensive benchmarking on various EuroHPC systems, supported by newly developed benchmarking scripts designed to facilitate performance tracking for both users and developers.

Finally, I will showcase results from real-world production simulation setups, demonstrating the practical benefits of these improvements in terms of performance, scalability, and usability.