

	Monday	Tuesday	Wednesday	Thursday	Friday
09:15-10:45	<p>Introduction</p> <ul style="list-style-type: none"> Welcome Use of desktop system Introduction to Parallel Computing <p>Anna Ghelli Dominique Lucas Iain Miller</p>	<p>Batch environment - PBS</p> <ul style="list-style-type: none"> ECMWF local PBS environment Practical session <p>Dominique Lucas</p>	<p>Compiling environment</p> <ul style="list-style-type: none"> Cray, Intel, GNU compilers Scientific Libraries <p>Philip Ridley (Cray)</p>	<p>MPI programming</p> <ul style="list-style-type: none"> MPI concepts Data types MPI communication MPI API MPI Standard <p>Paul Burton</p>	<p>I/O</p> <ul style="list-style-type: none"> LUSTRE file system Tools Recommendations <p>Cristian Simarro Peter Towers</p>
11:15-13:00	<p>Cray systems</p> <ul style="list-style-type: none"> Architecture of Cray XC30 <ul style="list-style-type: none"> Nodes Network LUSTRE file system Programming environment <p>Philip Ridley (Cray)</p>	<p>Advanced job launching</p> <ul style="list-style-type: none"> Different binding methods Hyper-threading <p>Philip Ridley (Cray)</p>	<p>Debugging programs</p> <ul style="list-style-type: none"> Abnormal Termination Processing (ATP) Stack Trace Analysis Tool (STAT) Slides and Practical session <p>Philip Ridley (Cray)</p>	<p>Further MPI programming</p> <ul style="list-style-type: none"> Practical session Exercise solution notes MPI API MPI Standard <p>Paul Burton</p>	<p>Debugging programs with ddt</p> <ul style="list-style-type: none"> Introduction Tutorial <p>Peter Towers</p> <p>Course evaluation - Close</p> <p>Anna Ghelli, ...</p>
14:00-15:15	<p>ECMWF environment</p> <ul style="list-style-type: none"> module environment 	<p>Parallel programming</p> <ul style="list-style-type: none"> Slides 	<p>OpenMP - Introduction</p> <ul style="list-style-type: none"> OpenMP at a glance Matching with 	<p>Optimisation of programs</p> <ul style="list-style-type: none"> Performance 	

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	<ul style="list-style-type: none"> • File systems available • Practical session <p>Cristian Simarro</p>	Paul Burton	<p>available hardware</p> <ul style="list-style-type: none"> • Processes, threads, affinity • OpenMP parallelization strategies • Performance & scalability • Miscellaneous cool stuff <p>Sami Saarinen</p>	<p>analysis tools</p> <ul style="list-style-type: none"> • Sequential optimisation <p>Philip Ridley (Cray)</p>	
15:45-17:00	<p>Batch environment - PBS</p> <ul style="list-style-type: none"> ○ PBS jobs ○ PBS directives ○ PBS commands <ul style="list-style-type: none"> • Practical session <p>Philip Ridley (Cray)</p>	<p>Parallel programming</p> <ul style="list-style-type: none"> • Practical session <p>Paul Burton</p>	<p>OpenMP - Continued</p> <ul style="list-style-type: none"> • Practical session <p>Sami Saarinen</p>	<p>Optimisation of programs</p> <ul style="list-style-type: none"> • Rank placement • Parallel optimisation <p>Philip Ridley (Cray)</p>	