



**Edinburgh, 20 Oct 2014 – SMAR Azure Ltd has been contracted by the British America's Cup team Ben Ainslie Racing (BAR) to contribute to the design of an AC62 wing-sail rig and catamaran structure.**

The America's Cup is sailing's most prestigious competition, attracting the world's foremost sailors, designers and engineers. Since its inception in 1851, the America's Cup sailing boats have changed rig, dimensions and rules many times to keep up with changes in technology. One of the most dramatic changes happened in 2010, when multi-hull and wing-sails were introduced, causing one of the most extreme technological shifts in the history of sailboat racing design.

The AC62 box rules created for racing the 35<sup>th</sup> America's Cup is, in very simple terms, a catamaran with a hull length of 62 feet, which has its thrust force developed by a wing sail rig also carrying a headsail. From a structural standpoint, the America's Cup boat box rule brings a number of difficult technical challenges. Teams are allowed to build only one version of the AC62 and – moreover – the novelty of the rules leaves the design team with little background technical information to build on.

Ben Ainslie Racing (BAR), the British America's Cup team, has contracted SMAR Azure to develop 'WingEdge', an integrated fluid-structural analysis software tool for the AC62 design and performance analysis. Conceived in accordance with the requirements of the BAR design team, *WingEdge* is a user-friendly, accurate and fast tool for the analysis of an AC62 hull platform and wing-sail.

The rules governing the operation of America's Cup teams do not allow for excessive amounts of time in experimental testing. The ability to use powerful, accurate and specific tools – *in silico* – to simulate the boat's behaviour is key.

*WingEdge* allows modelling of the AC62 platform, wing-sail and wing control systems as a single entity. Aerodynamic loads can be taken directly from RANS-based CFD solutions, or created using SMAR Azure's integrated Panel method for the wing-sail, and modified Vortex Lattice method for the soft-sail. The aerodynamic load is then applied to the structural model of the wing and the deformations, loads, and stresses are calculated. *WingEdge* is used by the BAR Design Team, as standalone software on a user's desktop, or as part of a larger optimisation loop.

Donald MacVicar, CTO of SMAR Azure, said: "*WingEdge* builds on, and makes use of the proprietary FEA system included in SMAR Azure's RigEdge, the unique tool for rig design and analysis". He added: "We are having an excellent collaboration with the BAR design team. We'd like to thank all the members of the team and wish them best of luck with their attempt to bring the Cup back to Britain!"

Sabrina Malpede, CEO for SMAR Azure, said: "When we incorporated the company 10 years ago, our dream was to provide the technology for the design of an America's Cup boat. Since the outset, SMAR Azure has engaged in the development of smart solutions to the complex problems faced by naval architects, rig designers and sail designers. As the AC box rule has been dramatically transformed, our R&D activities are being adapted to meet emerging needs and provide ad-hoc solutions." Sabrina concludes: "Being a British company, we are pleased and honoured to have been selected by the Ben Ainslie Racing team to develop such an advanced technology solution. We cannot wait to see the new boat sail on the water".