

The Usage of Thermal Regions as a Air Navigation Rule for Unmanned Aircraft Systems

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Abstract : Unmanned Aircraft Systems (UAS) become indispensable parts of modern airpower as force multiplier .One of the main advantages of UAS is long endurance. UAS have to take extra payloads to accomplish different missions but these payloads decrease endurance of aircraft because of increasing drag. There are continuing researches to increase the capability of UAS. There are some vertical thermal air currents, which can cause climb and increase endurance, in nature. Birds and gliders use thermals to gain altitude with no effort. UAS have wide wing which can use of thermals like birds and gliders. Thermal regions, which is area of 2-3 NM, exist all around the world. It is free and clean source. This study analyses if thermal regions can be adopted and implemented as an assistant tool for UAS route planning. First and second part of study will contain information about the thermal regions and current applications about UAS in aviation and climbing performance with a real example. Continuing parts will analyze the contribution of thermal regions to UAS endurance. Contribution is important because planning declaration of UAS navigation rules will be in 2015.

Keywords : unmanned aircraft systems, Air4All, thermals, gliders

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