**ASCENT COE Notice of Funding Opportunity (COE-2016-40)**

**Project Title:** Quantifying uncertainties in predicting aircraft noise in real-world situations

**FAA Project Manager:** Hua (Bill) He (hua.he@faa.gov)

**Nominal Funding Level:** $200,000

**Period of Performance:** One Year

**Deadline for response to this NFO:** April 15, 2016

**Project Description**:

The FAA has been funding research efforts in developing enhanced noise emission and propagation capabilities to better support environmental impact studies at both local and national levels. Enhanced modeling capability such as ray tracing has reached a sufficient Research Readiness Level (RRL) such that it is now being further developed for implementation into AEDT. Other enhanced modeling capabilities such as the use of a Parabolic Equation (PE) and Fast Field Approach (FFP) have been developed as well. It is important to validate the models, but such a process can be rather involved. Raw field measurement data are inherently complex. Meaningful comparisons of model predictions with field data requires a good understanding of both models (including input) and measurement data that are influenced by many factors. In some cases, the understanding of field measurement data can be achieved with the use of model predictions. Under this context, the research seeks not only to validate the modeling capabilities by comparing with measurement data, but also to quantify uncertainties of both model prediction and measurement in trying to predict aircraft noise (or patterns or changes) in real world situations, particularly when meteorological conditions over various different time periods may affect prediction output.

ASCENT members are hereby invited to provide a response to FAA to conduct research by (1) reviewing and analyzing available field measurement data\* for patterns that are influenced by the (change of) meteorological conditions; (2) identifying a set of field data for specific scenarios that contain proper parameters/quality input values to validate the enhanced modeling capabilities; (3) using the enhanced modeling capabilities to understand the patterns identified in the field measurement data that are influenced by the (change of) meteorological conditions and (4) quantifying uncertainties in predicting aircraft noise in real-world situations.

Responses received before COB 04/15/2016 will be evaluated. Depending on the number and the nature of responses received, FAA may recommend teaming of more than one institution. The team will then be requested to provide a full length proposal for further evaluation and possible funding to carry out the work.

\* Examples of the field measurement data include, but not limited to, the DiscoveryAQ data (http://ntlsearch.bts.gov/tris/record/ntl/55707.html), the BANOERAC data (https://easa.europa.eu/system/files/dfu/Banoerac%20final%20report.pdf).