

Asheville AMS  
Minutes of Meeting  
14 Nov 2007

1. The second meeting for the 2007-08 season of the American Meteorological Society (AMS), Asheville chapter, was held on Wednesday, 14 Nov 2007, at the Asiana Restaurant in Asheville, NC. After a Chinese buffet the meeting was called to order by the chapter president, Lt Col Paul Roelle. The secretary's and treasurer's reports were read with no corrections.
2. LC Col Roelle closed the business meeting and introduced the evening's speaker, Dr Karsten Shein. He is a climatologist at the National Climatic Data Center (NCDC). The title of Dr Shein's briefing was "Aviation and Climate, Observations, prognostications, and ruminations."
3. Dr Shein stated that most of the world's large airports were constructed over 40 years ago and most runway projects require 10 to 20 years from planning to completion. He then posed the question "Is it reasonable to assume that the climate conditions under which that airport or runway was originally planned will be the same as what is present throughout it's functional life?" This is very important since 70% of all flight delays are caused by adverse weather conditions.
4. Will climate change have the potential to impact aviation's future? Aircraft traffic is anticipated to increase several fold, larger aircraft will come into routine use, more aircraft will begin using off-routes, and new feeder and reliever airports will become more important. So some of the pertinent questions then become, 1. Will runways be long enough?, 2. Will aircraft be grounded during certain hours?, 3. What percent of flight delays will be due to adverse weather conditions? 4. And how will long-term changes in weather patterns and parameters affect the increasing role of aviation?
5. Many airports are near coasts or rivers. Sea level rises and more dramatic and frequent floods will have a huge impact on airports. Increases in low clouds and visibilities will close down airports more often. Higher temperatures and water vapor will negatively affect airplane performance, increasing takeoff length and lessening "climbing" ability. An example was given for 2 major U.S. airports. In Denver, with an airport elevation of 5,431 feet, the estimated one summer loss in transport capability for a single Boeing 747 by 3030 due to predicted increased temperature and water vapor is 2.3 million pounds, or 17% of the current total cargo. In Phoenix, the loss is estimated at 1.2 million pounds, or 9 % percent of the current total cargo capability lost.
6. Dr Shein summarized by stated "climate change cannot be ignored by the aviation sector", "There are broad implications for future operations", and how we respond falls within 3 categories, 1. Will we adapt by providing new routes and revised schedules?, 2. Will we mitigate the problems by inventing new technologies,

producing new aircraft, and building new airports?, or 3. Will we react by living with the increased delays and cancellations?

7. After the formal talk there were several questions. Lt Col Roelle then adjourned the meeting.

John D. Gray  
Secretary, Asheville AMS