INST 154
Apollo at 50
Discussion Questions
Session 23: Apollo 12: Precision Landing

1. It has been estimated that moonwalks cost a million dollars per minute (in 1969 dollars)! But there were always more things that needed to be done than there was time. What would be the best way of handling that – plan too much and then drop some things if you get behind, or plan conservatively but add things if you find you have more time? Who should make the decisions on which things to add or drop? What factors should they consider?

2. Between Apollo 7 and Apollo 11, NASA flew an Apollo mission about every 2.5 months. After Apollo 11 they waited 4 months to fly Apollo 12 to allow enough time to train for the more complex lunar surface operations and to allow enough time for the lessons from Apollo 11 to be assimilated. But the costs continued to accumulate, since (almost) all the people still needed to be paid, and flying less often raised the chance of some missions being cancelled. Given these considerations, and others that you can come up with, what interval should NASA have planned between missions after Apollo 12? What would be the costs and benefits of the interval you have selected?

3. Neither the risk of the Apollo 1 fire, nor the risk of the Apollo 12 lightning strike, had been anticipated by NASA, despite the physics of each situation being well understood. Learning from mistakes is good, but not making mistakes would be even better. Clearly the Aerospace Safety Advisory Panel created after the Apollo 1 fire was not sufficient to anticipate and prevent the Apollo 12 lightning strikes. What more could have been done to identify this risk before the problem occurred? Should the ideas that you have come up with have been tried? Why or why not?