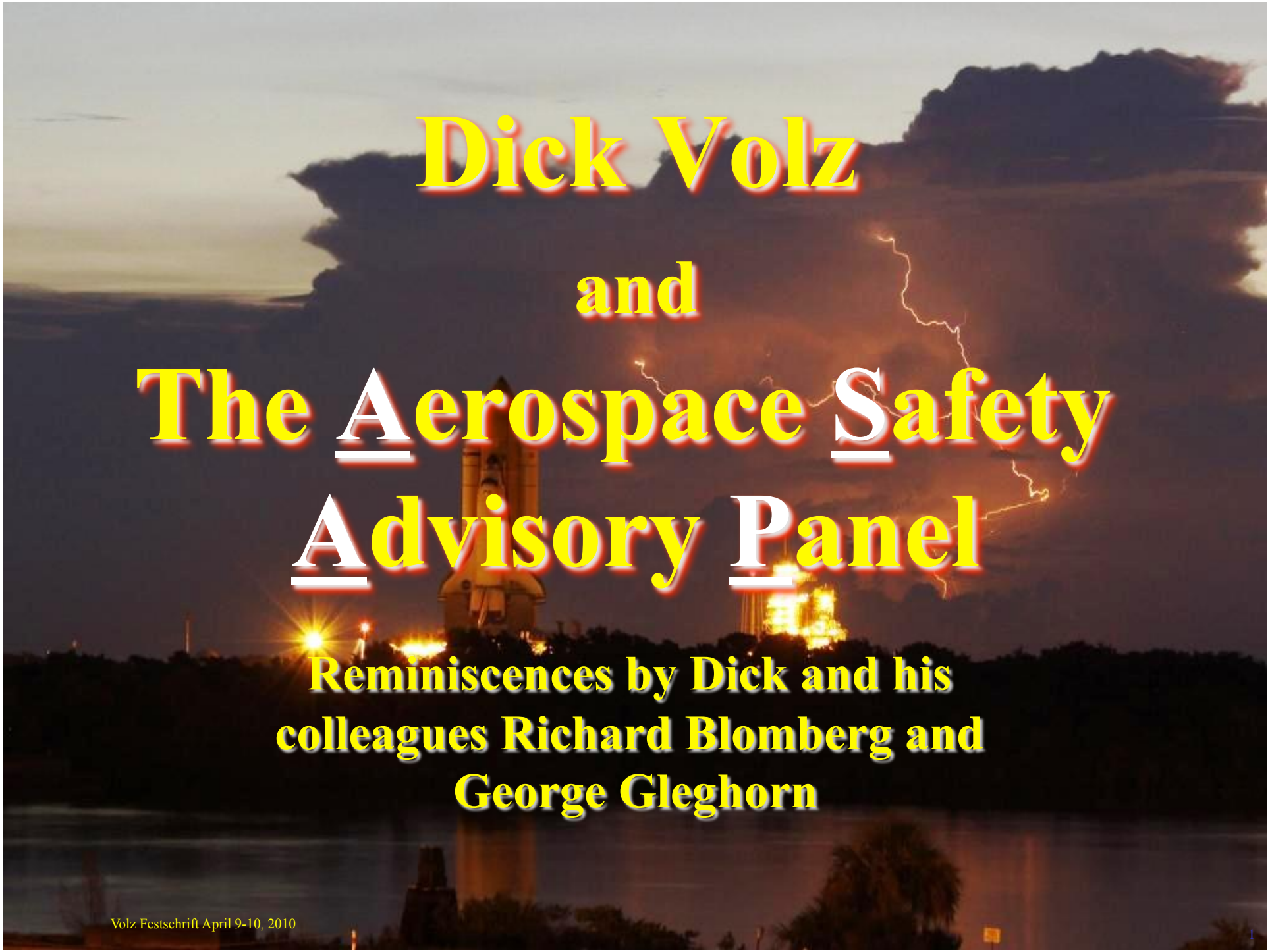


Dick Volz

and

The Aerospace Safety Advisory Panel

Reminiscences by Dick and his colleagues Richard Blomberg and George Gleghorn

What was our ASAP?

- Formed by Congress in 1967 after Apollo fire
- Members plus consultants
  - ➔Diverse backgrounds
  - ➔Extensive technical/management experience
  - ➔No direct involvement in NASA programs
- Collegial group
- Raised questions to prompt introspection

What Our ASAP was ***Not***

- A whistle blower
- An "enforcement" agency
- A watchdog for safety violations
- A replacement for good management

The Panel's Approach

- Examine NASA programs on a *continuing* basis using dedicated teams – Dick headed the computer team
- Interact with all levels of NASA and contractor personnel
- Be both Proactive and Reactive

The Panel's Approach

- Identify technical and programmatic issues that could impact safety ***and get them solved in place if possible***
- Assure safety consciousness remains foremost

The Panel's Approach

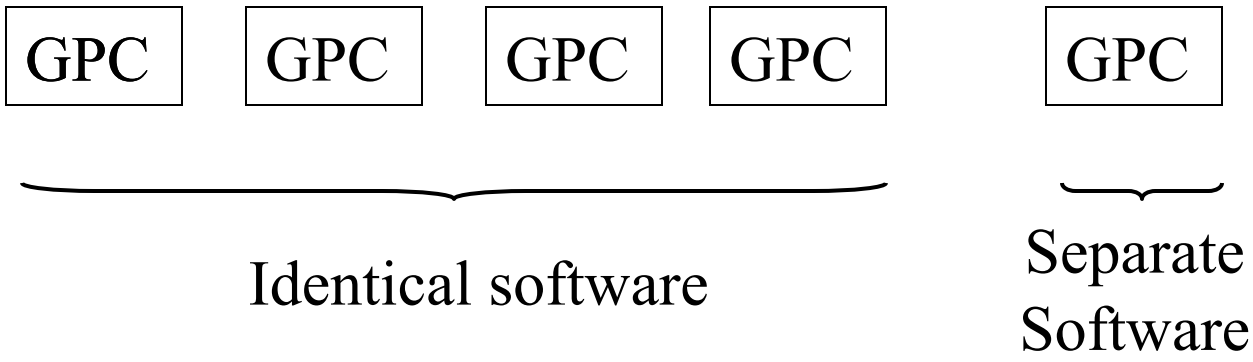
- Promote program introspection
- Cross-pollinate good techniques and ideas
- Convey concerns to the appropriate level for solution
- Serve as a sounding board

Some Typical Issues

- Review data related to space flights
  - ➔Shuttle launch preparation
  - ➔Documentation of Shuttle design
  - ➔GPC performance
  - ➔Software tools used
  - ➔Space station
  - ➔Launch Control System

Specific Examples

- Strategy to use in GPC upgrade
  - ➔5 GPC redundant system



  - ➔What combination of new & old GPCs should be used?
  - ➔New GPC performance

Dick's Contributions

- Ensured that the role of computers was always considered
- Kept NASA and contractors focused on reality and safety
- Led, but never bullied, managers and engineers to find the right solutions
- Cross-pollinated ideas
  - ➔NASA-to-NASA
  - ➔DOD-to-NASA
  - ➔Academia-to-NASA

Dick's Approach

- Always friendly and helpful—never intimidating (except for those detailed and endless notes!)
- Always interdisciplinary—systems oriented
- Never rigid—always willing to be convinced

Some of Dick's Contributions

- Shuttle General Purpose Computer (GPC)
  - ➔Promoted continued early upgrade
  - ➔Retained rigorous software testing
  - ➔Never let its limitations be overlooked

Some of Dick's Contributions

- International Space Station computer architecture
  - ➔Promoted newer computer architecture
  - ➔Highlighted limitations of the processors
  - ➔Promoted clear architecture documentation
  - ➔Questioned use of code generators and "hand corrections"
  - ➔Called attention to interface issues with International Partners

Some of Dick's Contributions

- IV&V Center, Fairmont, WV
  - ➔Highlighted its startup problems
  - ➔Prompted a realistic view of its capabilities throughout NASA
  - ➔Fostered its reasonable use
  - ➔Helped give it credibility with the other NASA IT organizations

Some of Dick's Contributions

- KSC Updated Launch Control System (LCS)
  - ➔Promoted a rational design process
  - ➔Questioned robustness of the design
  - ➔Highlighted potential security issues

Not Everything was Computers

- George Focused a lot on Orbital Debris
- Richard's Specialty was Human Factors

Example from George

- In a cost-cutting mood, NASA told us they were planning to eliminate the orbital debris office. Protested that both ISS and STS needed dedicated advocacy and that international cooperation on control of debris would be best achieved by non-military negotiators. Administrator agreed, and cut was eliminated.

Examples from Richard

- Shuttle has 3 OPFs (hangars). Lighting was greatly improved in 1. Pointed out that contrast with the other 2 might hurt productivity and safety
- High pressure hose hooked to low pressure port of SRB. Cause was listed as not following procedures. Noted that different fittings would have made incident impossible

You could have heard a pin drop!

In Summary

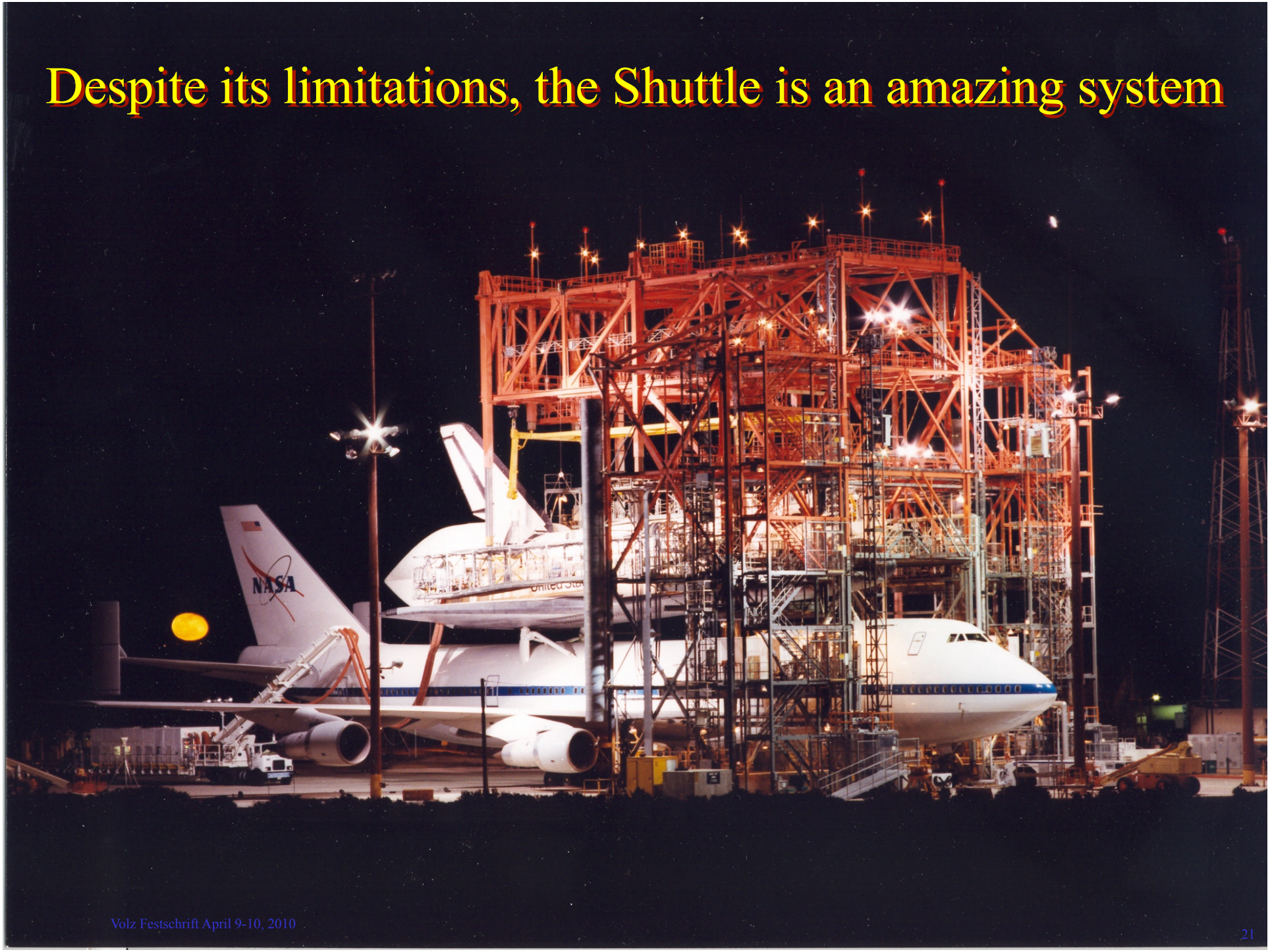
- Although they sometimes ran when they saw Dick (and us) coming, they always listened intently to what he had to say
- Dick made a difference on the ASAP and in all of the NASA programs he examined
- Dick was fun to work with on ASAP—a great colleague
- Dick richly deserves this honor

Now for Some Memorabilia

First, Why We Were All So Excited—The Toys

Just to be a part of this was a thrill

Despite its limitations, the Shuttle is an amazing system



We are all proud to have been a small part of it


It wasn't just spacecraft—aircraft are fun too!

Even if you can't fly on them!

A Few Shots of Dick in Action as a Member of ASAP


Can you guess who's the one non-airplane guy in the bunch?


The airplane folks know better than to stand in front of a jet intake!

In Conclusion

- Dick did a lot for ASAP and NASA
- He was the ideal colleague
- It was a pleasure to serve with him and to become his friend

Comments and Questions