RATHER DEAD THAN SECOND

Improving the safety of glider competitions

FLYTOP

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- flying sailplanes since 2006
- member of the Akaflieg Frankfurt
  academical gliding club of Goethe University
  - NOT building gliders
  - BUT soaring related research such as
    - mountain wave / thermals research
    - data gathering / sensor platform
      [AFIIS – Akaflieg Frankfurt Inflight Information System]
      \(\rightarrow\) (big) data science / swarm intelligence
  - flight safety

- engaged with FLYTOP since 2015
- background in IT & economics, happily married to Marina
  (biochemist / quality manager) and currently 0.8 children, …
Citations from a Steward‘s report on a World Gliding Championship

- The safety the competition was one of the worst in a WGC.
- We do not really understand why we had so many accidents and incidents ...
- Some pilots seemed to be “over motivated” and flew too aggressively ...
- These accidents and incidents cannot be considered as the fault of the organisers.

(source not disclosed!)
Rather Dead than Second

- Pilots in competitions tend to adapt more risky behavior if they think they can gain advantages
- Self preservation becomes less important than the desire to win
- Attitudes and behavior of these pilots can not be changed by logical reasoning or pleads for safety
- However, they adopt and react very clearly to rules and regulations of the competitions

=> implement a „Safety does Pay“ approach in the rules of the competitions
Do we really need an improvement in safety in competitions?

compared to other risks (fatalities per million flights) in glider flying:

competition flights with a risk of >120 is are

6 times more risky than „ordinary“ glider flying (ca 20) and

4 times more risky than alpine glider flying (ca 4)

=> YES safety needs to be improved!
Our Approach

• **Education:**

• Safety is more than act according to good rules and be cautious

• Safety for competitions has to be actively constructed using proven and tested methods
Different Safety Levels

For competitions there are 4 levels of safety.

We have to teach:

• pilots (competitors)
• glider teams (crews)
• organizers & officials (leaders)
• the Safety Officer (resp. Steward)
Typical Time Line for teaching safety to a competition

Safety training delivered to the Safety Officer typical 3 events! more than 60 h

Safety training delivered to Organizers and Officials of a Competition Jan...March Year YYYY

The Competition May of Year YYYY
Safety Events During the Competition

- responsible: the Safety Officer

- Safety Briefing = safety training for the pilots (max 1 h)
- Safety training for teams/crew members
- dynamic safety reports

initial briefing

day 1

day 1-3

daily safety briefings
Safety Training for the Organizers/Officials and Helpers of the Championship (organizers)

- Duration: 6 hours = 1 Day (typ. 09:00 – 18:00)
- Aim: Ensure that all personal involved in organizing and/or implementation of the championship have a
  - common notion of modern flight safety
  - know how safety is produced resp. reduced
  - know flight safety procedures
  - understand their role in producing safety
  - understand the role of the Safety Officer
  - understand methods of „dynamic (proactive) safety“
Syllabus for Organizers‘ training:

- what is safety and how is it produced
- static and dynamic safety
- errors vs rule violations
- role of the teams/crews/ wives / helpers in producing safety
- communication and safety
- „safety culture: punish mistakes vs proactive
- Emergency Handling (Emergency Plan)
Safety taring for pilots

• during initial briefing a safety briefing (max 1 h) is held - main topic:
• rewarding an active role in the improvement of safety of this competition:
• 6% for safety (“safety pays”):
• each competitor should hand in valid proposals how to improve safety of this competition
• for each valid proposal up to the third flying day the competitor is awarded a bonus 1% on the scoring
• safety officer decides the validity of the proposal
Rules of the Game

• During the next three (flying-)days of the competition you are asked to fill out such safety observation cards
• The Safety Officer will be the only person that reads these cards
• The Safety Officer will evaluate, if the remark is a valid proactive safety observation
• If you hand in at least 6 valid cards you will get 6% additional competition points
Valid Proposal

• Proposals are valid if they concern a specific, observable, safety relevant issue of the competition, which can be effectively influenced by a concrete measure of the competition’s organization

• Counter example: “Bad weather”

• Good example: “Tell tow pilot of plane XXX to fly faster during tow”
Examples of valid proposals:

- clearer (visible) separation between start grid, landing filed and taxiways is requested
- making the callsign of tow planes readable form the PIC in the glider
- definition of a safety frequency
- etc....

- For n (typ. 40) competitors the Safety Officer receives at least 3*n = 120(!) proposals how to improve the safety
Training of the Crews/Teams/Helpers/ Wifes

• typically held on the first flying day
• Safety Officer explains their role in dynamic flight safety:

  do you see the error?

• basics of communication w.r.t. safety
Daily Safety Briefing

• (very short 5-10 min)
• held either by the safety officer or by some selected persons (competitors)
• NO: NAME/SHAME/BLAME!
• no pleads
• report on actions as a result of the safety proposals
• concrete proactive measures how to improve the „Safety Culture“ of this competition
Knowledge and Skill requirements for a Safety Officer

• Safety Officer in German Wettbewerbsordnung called: Verantwortlicher für Flugsicherheit resp. „Flugsicherheitsinspektor“
• in FLYTOP courses a safety officer must have advanced theoretical and practical knowledge in modern flight safety methods
• must be able to evaluate a „safety culture of a system
• must know how to improve the „safety culture“
• has advanced knowledge and skills in communication
• be a good teacher (good presentations)
Education of a Safety Officer

• knowledge of all relevant rules and regulations
• knowledge of modern flight safety methods
• 1 participation in an active cultural change of a gliding club
• 1 responsible role in an active cultural change of a gliding club

• knows the organizers & their „culture“
Praxis Tests

• 3 regional competitions implemented the FLYTOP-competition system
• Safety was immediately improved when several proposals pointed to a deficit
• some proposals could be immediately realized
• others were planned for the next competition
Improvement for the Competitors

- 6% for safety was an easy goal for every competitor
- Final competition scores depended only on gliding performance
- It would only have an effect if actively refuse to participate at these safety measures
- Improving safety by integration of crews/wives/helper into the safety system
- More than 96% percent of the pilots voted for a continuation of the FLYTOP competition safety system in future competitions
Personal Perspective on Improvements for Competition Safety

- Existing Rule bodies (from FAI Code sportive to the German Wettbewerbsordnung) implement a
  - „Punish misconduct“ approach
- No requirements for education in modern safety methods for competition organizers and/or
  - stewards and/or
  - safety officers
Summary

• Safety is more than
  – punishing misconduct
  – adherence to rules (SOP) and
  – be cautious

• Safety methods must be learned and can be taught

• time requirements for education in safety:
  – 1 day training for competition organizers
  – less than 1 h per pilot
  – ca 2 h per crew

• Important: education of skilled Safety Officers
HALDE