

FLYTOP

FLY TOP - FLY SAFE!

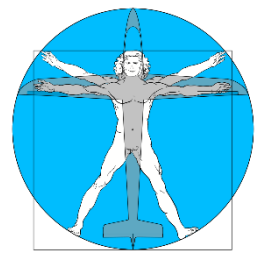
RATHER DEAD THAN SECOND

Improving the safety
of glider competitions

FLYTOP

www.flytop.org

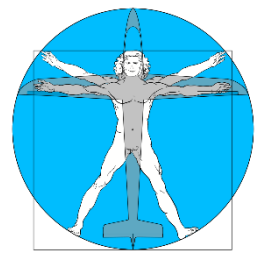
- Prof. Dr. Alfred Ultsch -
ultsch@ulweb.de



Tobias Kemmerer



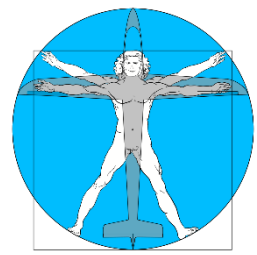
- *flying sailplanes since 2006*
- *member of the Akaflieg Frankfurt
academical gliding club of Goethe University*
 - *NOT building gliders*
 - *BUT soaring related research such as*
 - *mountain wave / thermals research*
 - *data gathering / sensor platform*
[AFIIS – Akaflieg Frankfurt Inflight Information System]
→ (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.

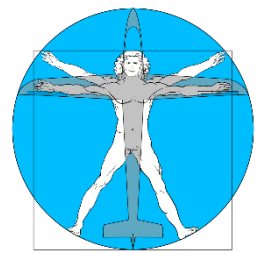
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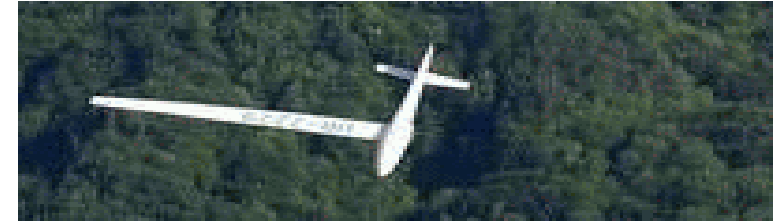
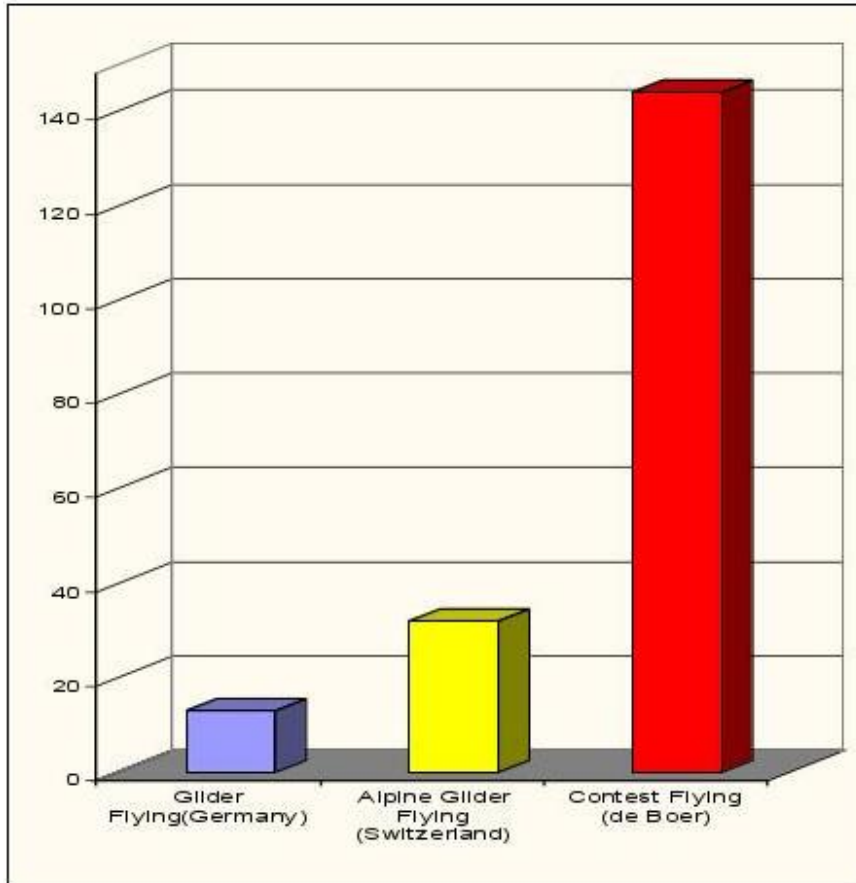
Rather Dead than Second

- **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

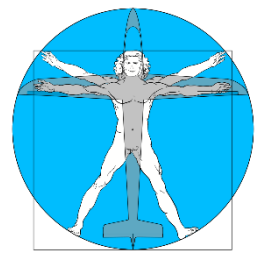


Do we really need an improvement in safety in competitions ?



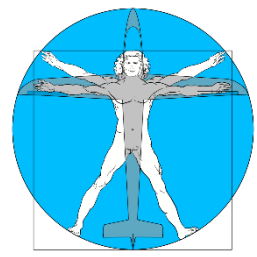
Swiss Championship

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**

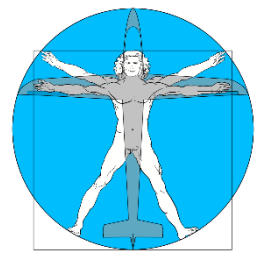


Different Safety Levels

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)**

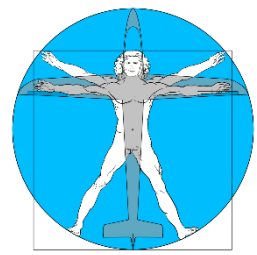


Typical Time Line for teaching safety to a competition

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

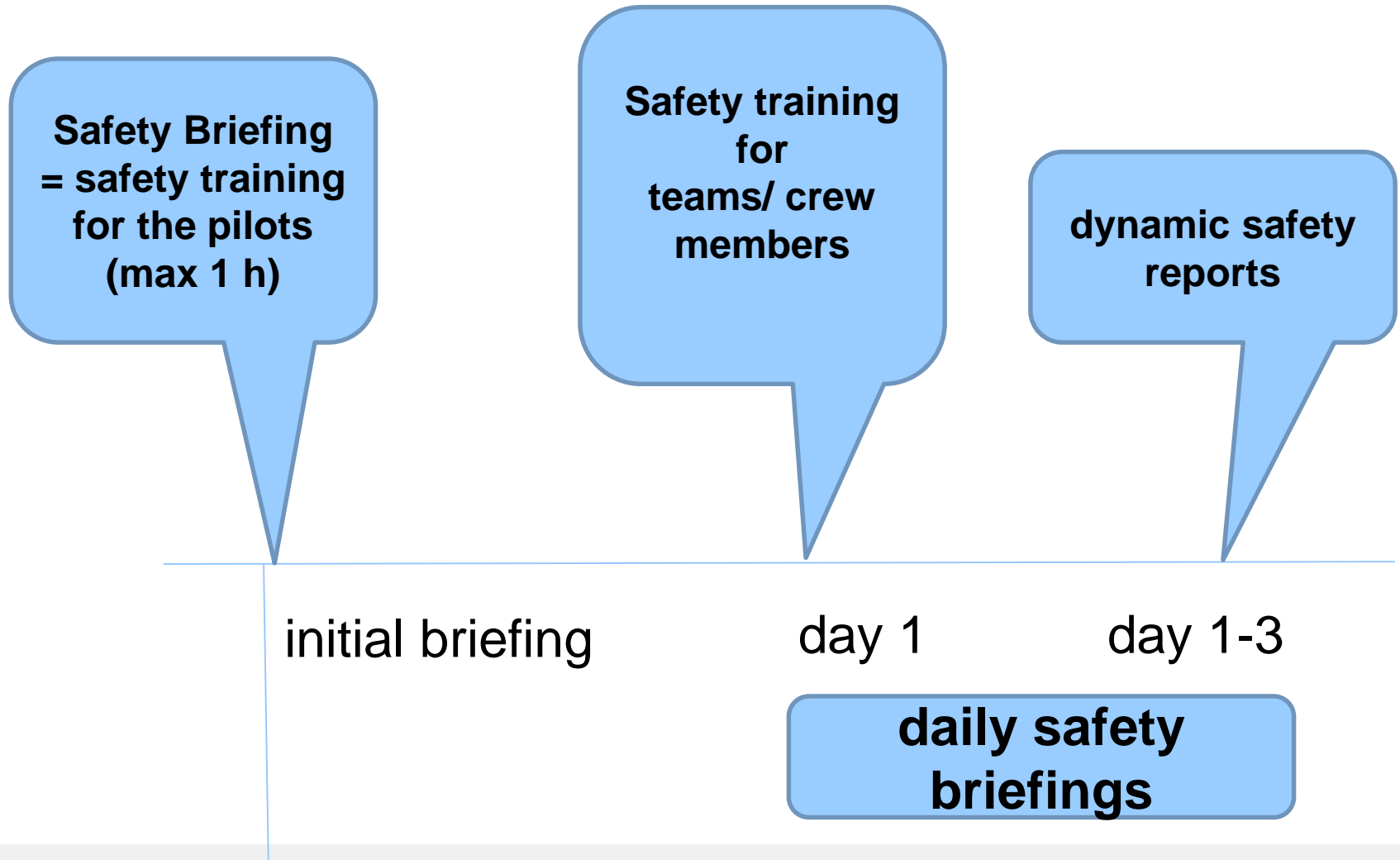
Safety training delivered to **Organizers and Officials** of a Competition Jan...March Year YYYY

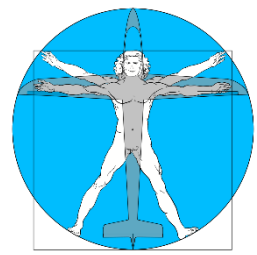
The **Competition** May of Year YYYY



Safety Events During the Competition

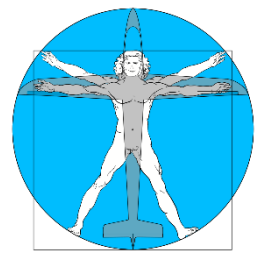
- **responsible: the Safety Officer**





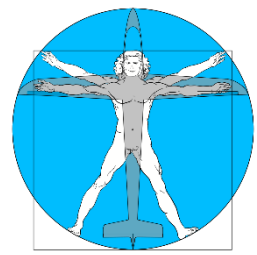
Safety Training for the Organizers/ Officials and Helpers of the Championship (organizers)

- **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“**



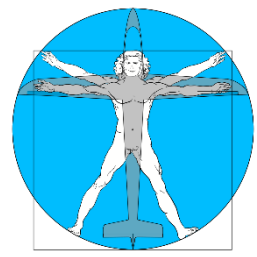
Syllabus for Organizers' training:

- 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)



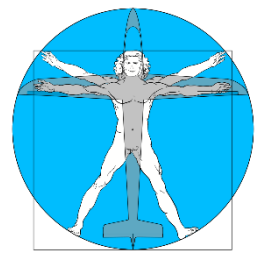
Safety taring for pilots

- 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



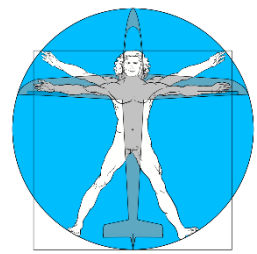
Rules of the Game

- **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**



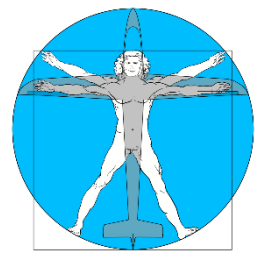
Valid Proposal

- **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 field and taxiways is requested
 - making the callsign of tow planes readable from 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



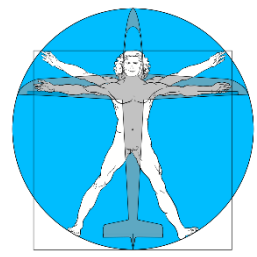
Training of the Crews/Teams/Helpers/ Wives

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



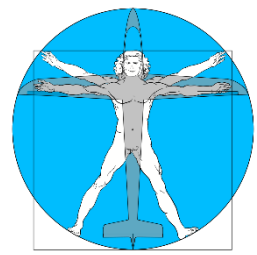
do you see the error?

- basics of communication w.r.t. safety



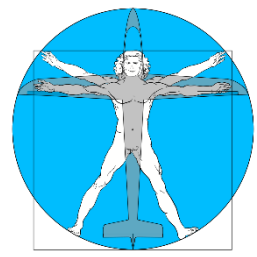
Daily Safety Briefing

- (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



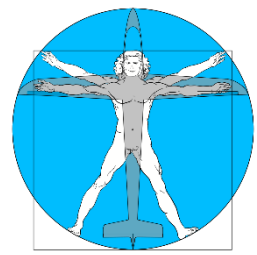
Knowledge and Skill requirements for a Safety Officer

- **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)**



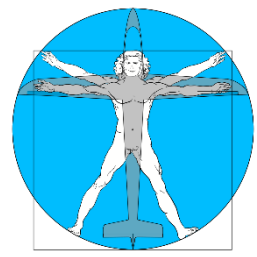
Education of a Safety Officer

- 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“



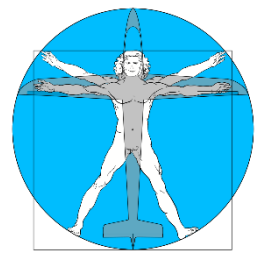
Praxis Tests

- **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

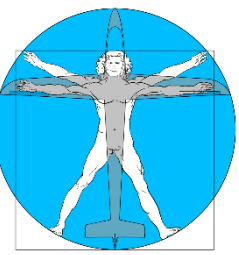
- **6 % for safety was an easy goal for every competitor**
- **final competition scores depended only on gliding performance**
- **it would only have an effect if actively refuse to participate at these safety measures**
- **improving safety by integration of crews/wives/helper into the safety system**
- **more than 96% percent of the pilots voted for a continuation of the FLYTOP competition safety system in future competitions**



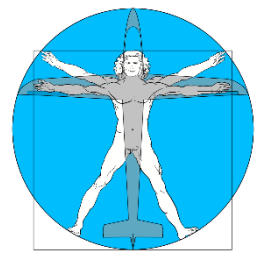
Personal Perspective on Improvements for Competition Safety

- 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**



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