RATHER DEAD THAN SECOND

Improving the safety
of glider competitions

FLYTOP

### www.flytop.org

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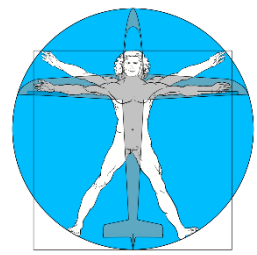
ultsch@ulweb.de
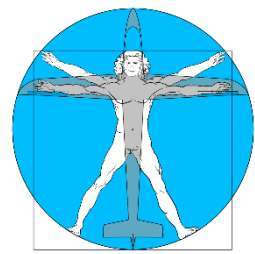
Tobias Kemmerer

- **_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, …_
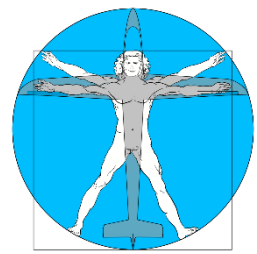
Citations from a Steward's report on a World Gliding Championship

- **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.**

(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
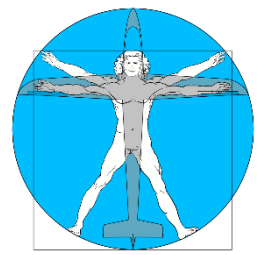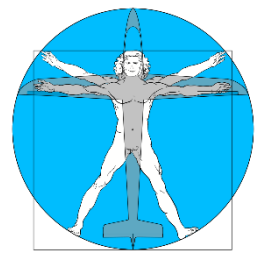
# Do we really need an improvement in safety in competitons ?
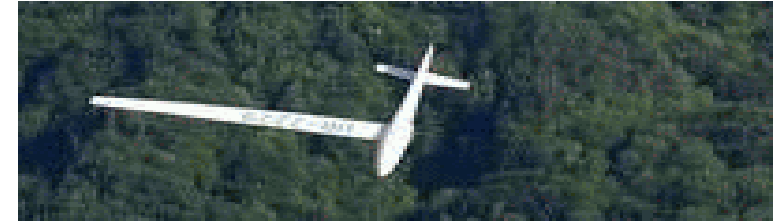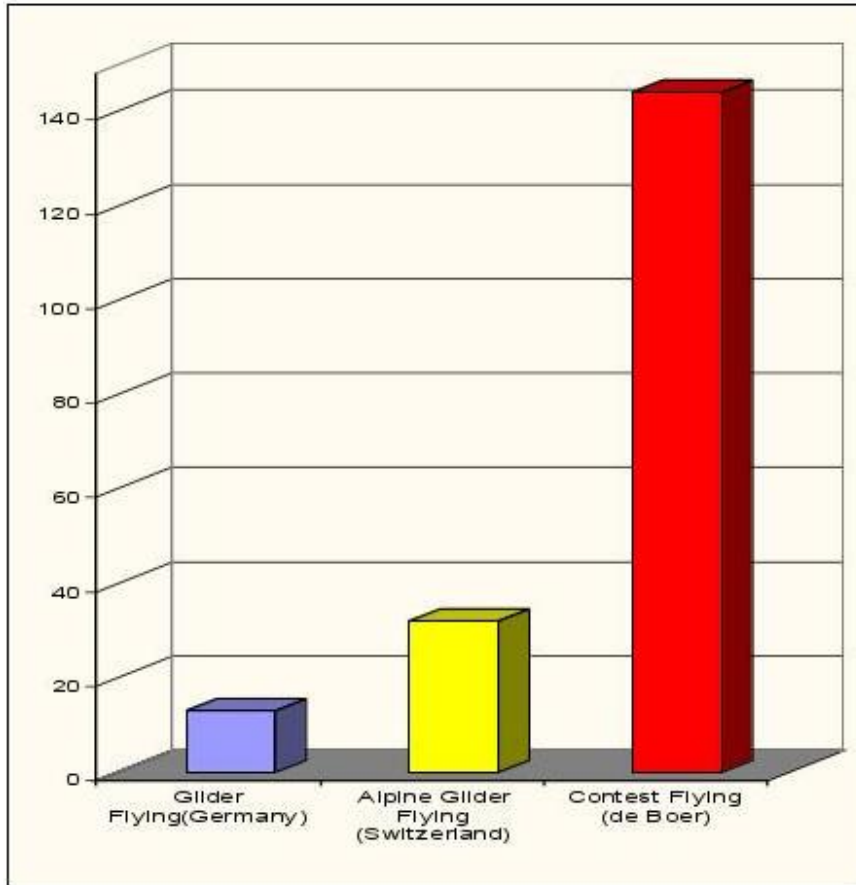
Swiss Championship

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**
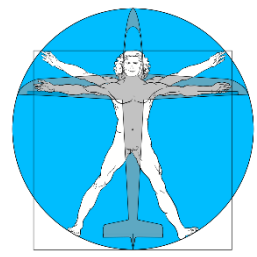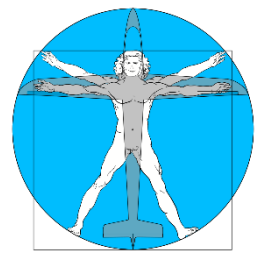
Different Safety Levels

For competitions there are 4 levels of safety.

We have to teach:

- pilots (competitors)
- glider teams (crews)
- organizers & officials (leaders)
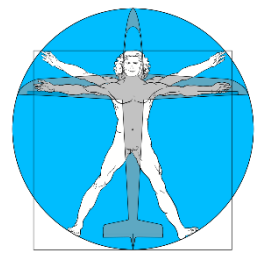- the Safety Officer   (resp. Steward)

Typical Time Line for teaching safety to a competition

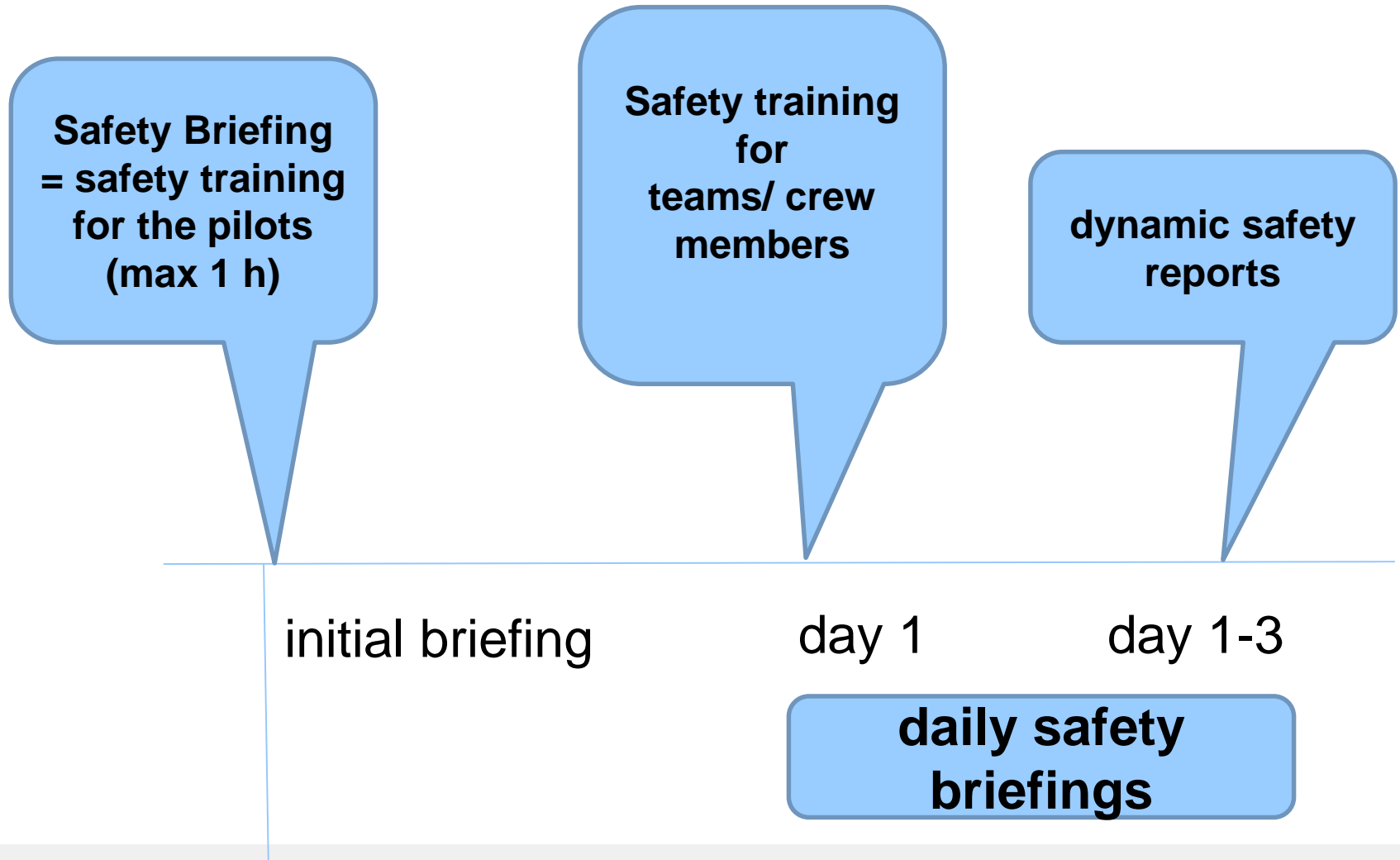**Safety training delivered to the Safety Officer typical 3 events! more than 60 h**

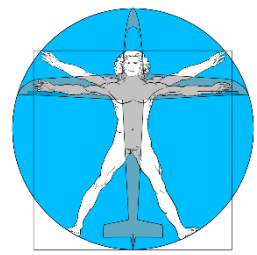**Safety training delivered to Organizers and Officials of a Competition Jan...March Year YYYY**

The Competition May of Year YYYY

Safety Events During the Competion

- **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
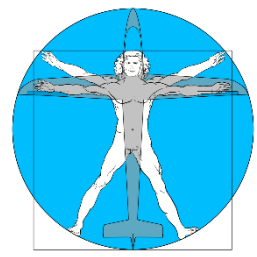
daily safety briefings

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**
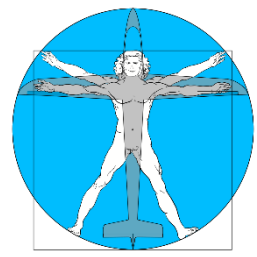- **understand methods of „dynamic (proactive) safety"**
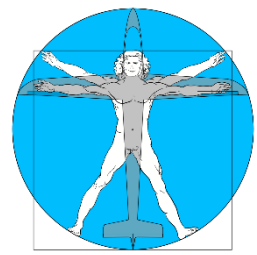
Syllabus for Organizers' training:

- **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**

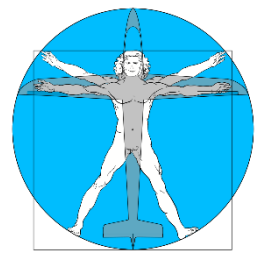- **Emergency Handling (Emergency Plan)**

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"**
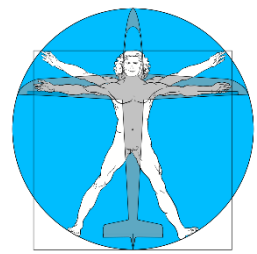
Examples of valid proposals:

- 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
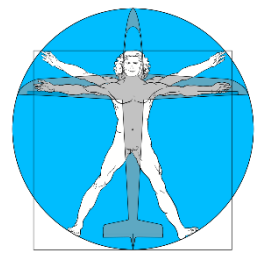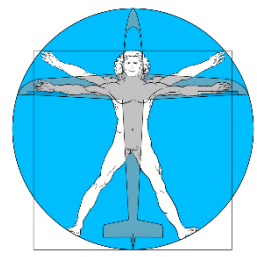
Training of the Crews/Teams/Helpers/ Wifes

- **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**
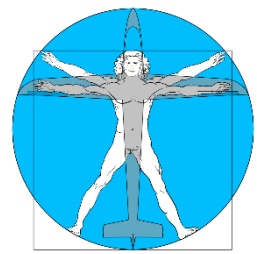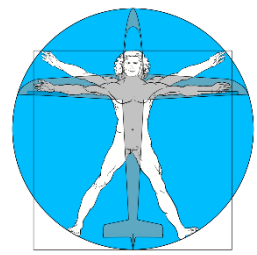
Knowledge and Skill requirements for a Safety Officer

- **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**
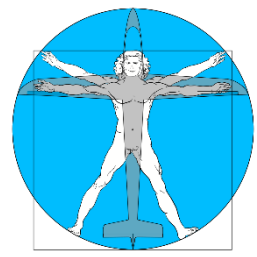
- **be a good teacher (good presentations)**
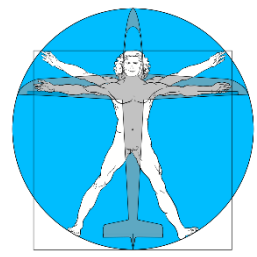
Education of a Safety Officer

- knowledge of all relevant rules an 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

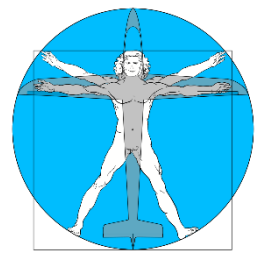- knows the organizers & their „culture"

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**
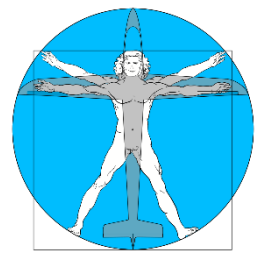
Personal Perspective on Improvemts for Competition Safety

- **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
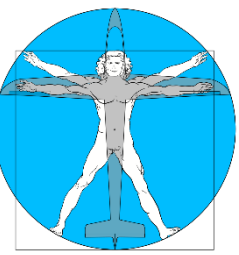
- **Safety is more than**
  - punishing misconduct
  - adherence to rules (SOP) and
  - be cautious

- **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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