

# Safety Pays

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## Summary

- **OSTIV offers improvement of safety in gliding to IGC**
- **International gliding competitions are important market places**
- **Best pilots are models for most other gliding pilots and clubs**
- **Participation in international gliding is a privilege, pilots should actively contribute to safety**
- **IGC-sanctioned gliding competitions are an instrument to improve safety**
- **Three proposals are discussed**

## Is Gliding safe?

- Example: Germany (approx 1/3 of worldwide gliding activities)  
2006: 30.120 pilots (115.420 worldwide)
- 1990 – 2008: Fatality rate about *1:2500 per year*  
no tendency to decrease
- Road traffic:  
1991: *1:7200 per year*                      2008: *1:18400 per year*

That's why  
the *safety of gliding must be improved*

## Safety of gliding must be improved

### Two ways for improvement

1. ***External*** regulatory policies and measures
  - more restrictions, more complexity, more requirements, higher costs
  - Used by EASA, FAA, ICAO, CAAs, ATCs

***Most of us agree that we do not need/want more restrictions,  
more complexity or higher costs.***

## **Safety of gliding must be improved**

**Two ways for improvement**

### **2. *Internal* safety policy**

- **recognised and applied by all glider pilots**
- **Involving all people in gliding operations**

**This paper intends to follow this latter approach.**

## **IGC and improvement of safety**

**IGC is involved in organising international gliding competitions**

**Competitions contribute to international contacts, understanding, exchange of experience and knowledge**

**Competitions have a great impact on the market for new gliders, technology and tactics**

## Gliding competitions and safety

***"Accidents happen to other pilots,  
not me!"***

## Gliding competitions and safety

### International gliding competitions:

- **“Here the Great Pilots fly”**
- **example for many other pilots and clubs**
- **role models, inspiring the less experienced pilots**
- **significant influence on gliding operations**
- **commercial impact ("Winners List" at manufacturer's webpages)**

**Competitors should actively contribute to the safety of gliding**



## Gliding competitions and safety

One more reason for safety in gliding contests: increased accident risks

25 World Championships and 3 Gliding Grand Prix

5 pilots have been killed and 3 more bailed out successfully

***One fatality per 8.000 flights***

More than ***eight*** times higher than the average world wide in gliding

## Proposal A

*Introduce a Safety Award during international gliding competitions*

### Safety Award at IGC contests

- related to the whole competition event
- not restricted to a single class or competing pilots or other groups
- presented at the prize giving ceremony
- **for the most outstanding contribution to safety**

## Proposal B

### *Enhance emergency cockpit egress*

#### **Training of rapid cockpit egress during competitions**

- undertaken by all competitors
- measured and video registered on the ground
- analysis and evaluation during a safety briefing
- performances compared against the average
- **winner in each 10 years age category will be awarded**

## Altitude to survive mid-air breakup using parachute systems.

Most mid-air collisions occur below 1000m !

Pilot actions after midair breakup:

- fright, recognition, decision: 3
- pull canopy jettison handles or actuate NOAH, GPRS or PRS: 1,5
- unlock safety belts manually: 1,5






first 4,5 seconds after breakup

first 6 seconds after breakup

## Proposal B

## Altitude to Survive

(Professor Wolf Röger, Fachhochschule Aachen)

	Minimum time for parachute deployment after mid-air breakup:		Minimum Altitude to survive:
Autonomous bailout, 1,5G conditions:	>13s		850 m
Autonomous bailout, 1G conditions:	>10s		600 m
Bail out with NOAH	7 s		400 m
Bail out with PRS:	5 s		250 m
Stay in cockpit with GPRS:	4,5 s		220 m

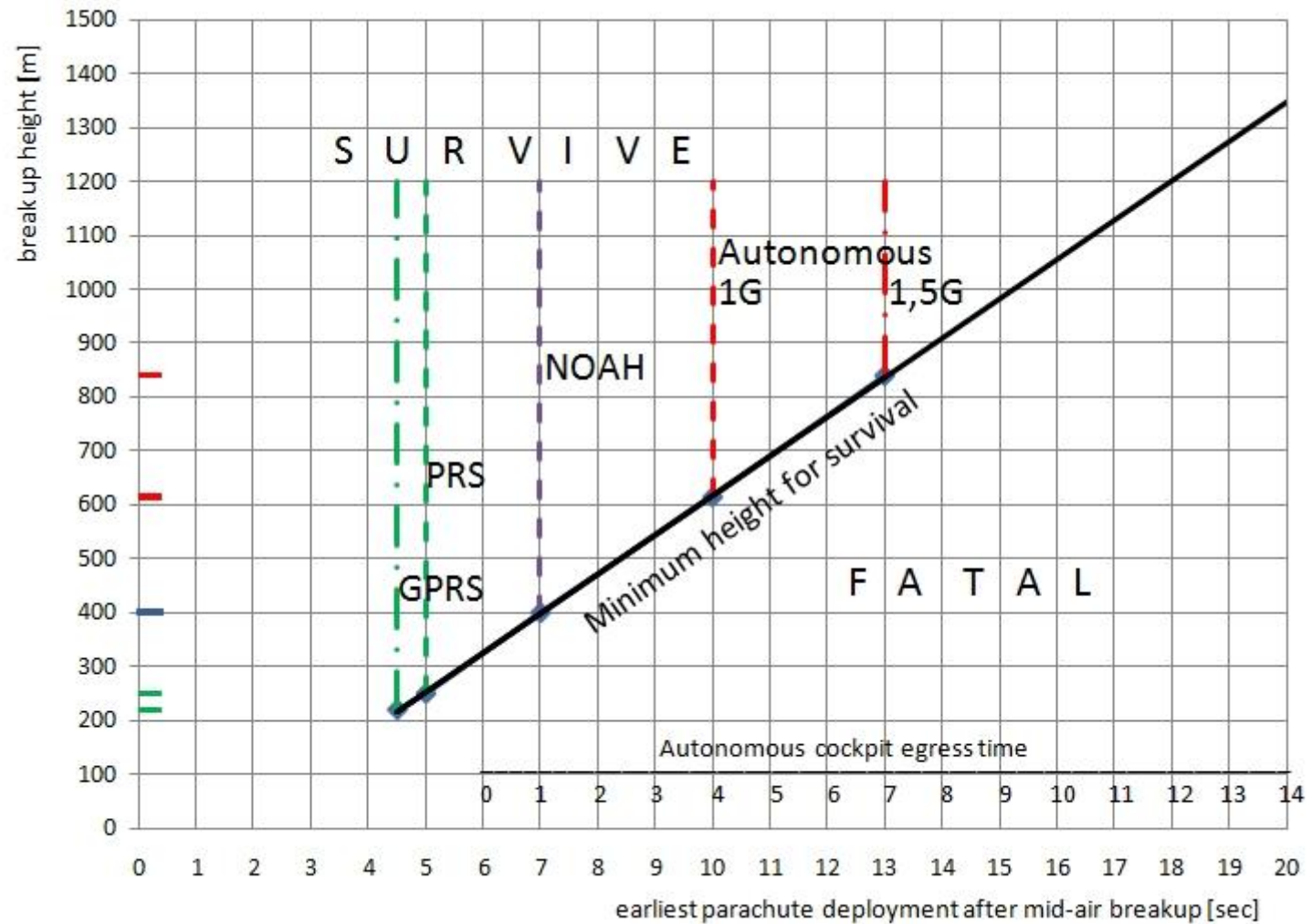
Mid-air damage: fuselage broken off behind wings.

Ref. Prof. Wolf Röger, FH Aachen

## Proposal B

## Altitude to Survive

(Professor Wolf Röger,  
Fachhochschule Aachen)

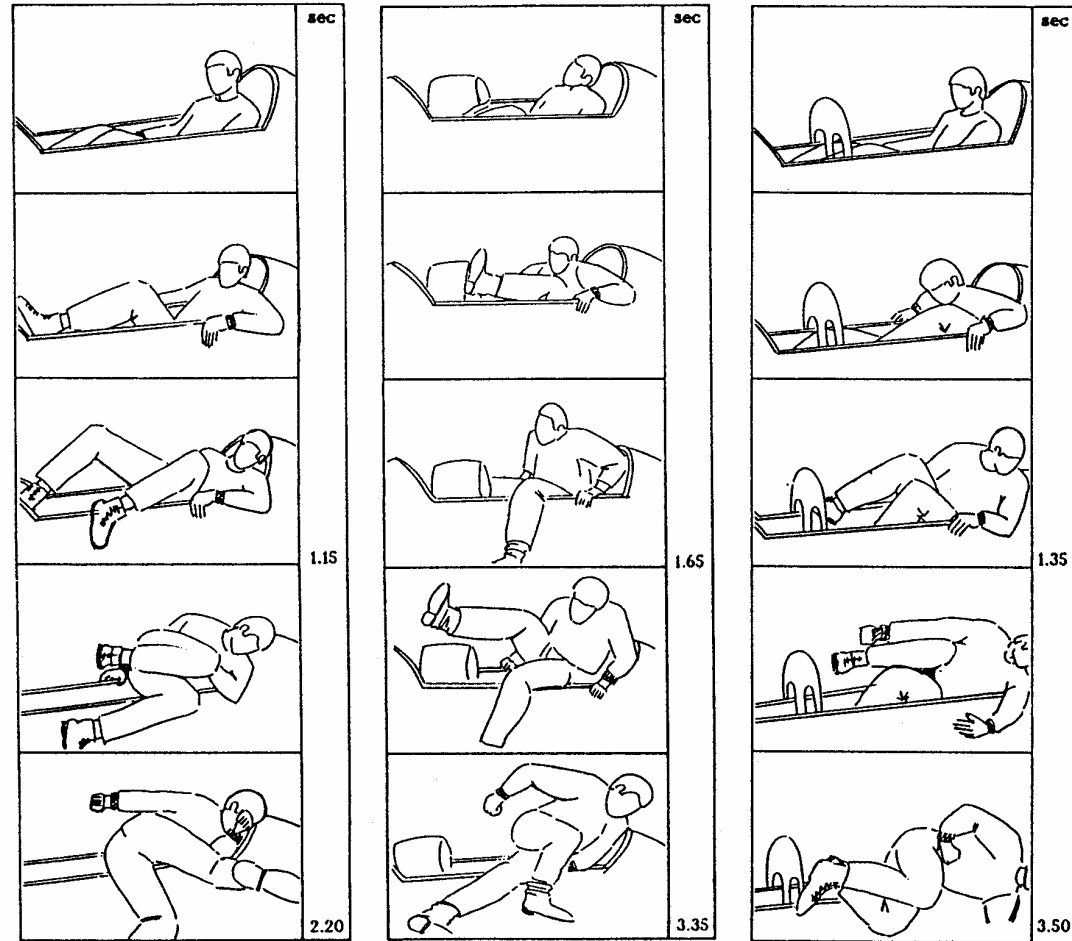


## Proposal B

*Emergency roll out  
from the cockpit*

**Roll manoeuvre  
depending on the type  
of panel**

(Professor Wolf Röger,  
Fachhochschule Aachen)



without any panel

mushroom-type panel

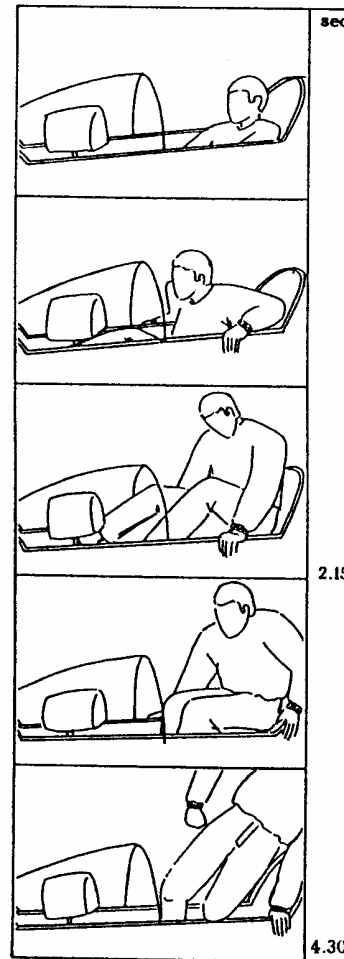
with a panel

## Proposal B

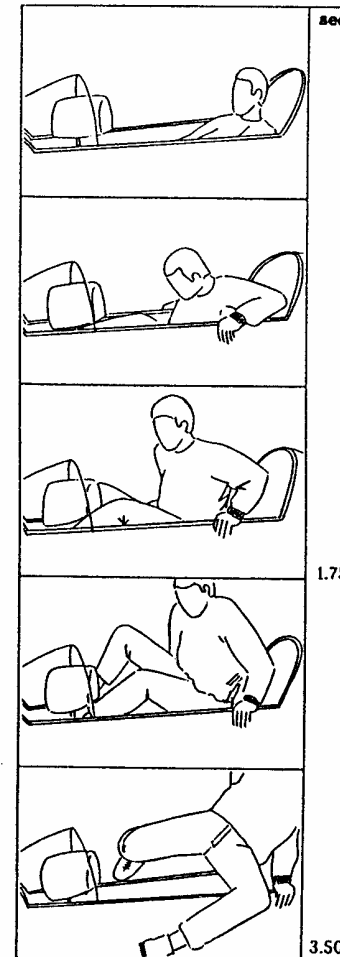
*Emergency roll out  
from the cockpit*

**Roll manoeuvre  
depending on the  
length of the canopy**

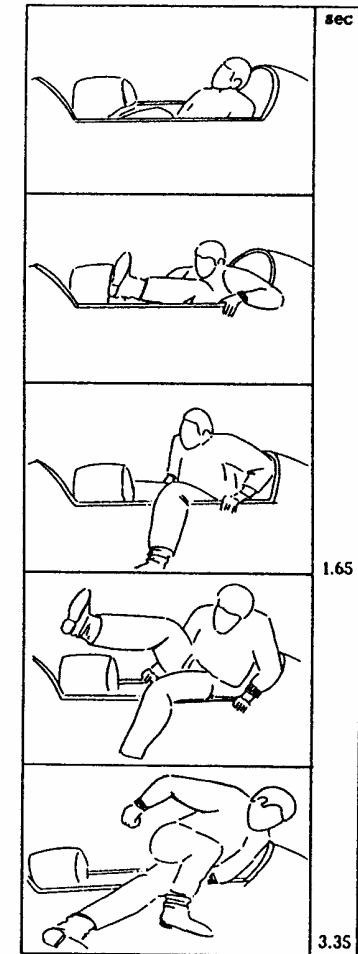
(Professor Wolf Röger,  
Fachhochschule Aachen)



60 cm



90 cm



120 cm

## Proposal C

*Reward safety provisions installed in competing gliders*

### Technical safety provisions

- can contribute to lower accident risks
- lessen injuries due to gliding accidents
- are hardly used by competition pilots

**Problem: Fear of negative effect on performance or costs**

**Enhancing the use of such on-board safety devices is proposed**



## Proposal C

**Relating safety with competition points is not new at all. In present competition rules safety *infringements* are often penalized with fines: in competition points! (negative)**

**So why not reward *contributions to improve safety* also with competition points? (positive)**

## Proposal C

***“6% for Safety”***

**The aim of pilot's: *gain more competition points***

**Competition points should be used as a safety reward**

- on every competition day
- **6%** of the maximum score as a balanced value
- related to the points of the *winner of the day*

## Proposal C

### *“6% for Safety”*

**To ease acceptance and allow manufacturers development:  
Introduction in two steps**

**First phase:**

**Total reward for on board safety provisions is limited to 4%.**

**Second phase:**

**limit is lifted to the eventual 6%.**

**(e.g. when new safety provisions are available on the market)**

## Proposal C

### *The “Shopping list”*

#### Free choice “shopping list”

- of rewardable safety devices,
- starting with a total of 4% for safety rewards
- no need to install all devices
- no big money is needed here

## Proposal C

### *The “Shopping list”*

#### Competition pilots are privileged

- to participate in international gliding competitions
- to contribute to improve their own safety
- and to the safety of gliding at large

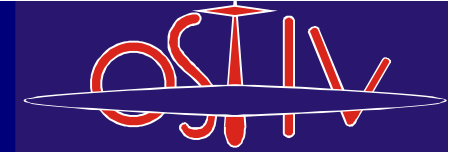
## Proposal C

### *The “Shopping list”*

**Choosing the rewards, the following aspects have been considered:**

- 1. effectiveness in preventing accidents**
- 2. effectiveness in preventing or reducing injuries from accidents**
- 3. costs**
- 4. possible negative effect on glider performance**
- 5. availability on the market**
- 6. stimulus needed to persuade the pilot to install the device**

# OSTIV SDP Safety Pays



Sailplane Development Panel

	<b>Safety device</b>	<b>Reward</b>
A	Energy Absorbing Foam seat cushions for spine protection	0,4 %
B	Anti submarining safety harness	0,6 %
C	Spinal Protection device	0,5 %
D	Increased shock absorbing landing gear	1,2 %
E	Spoiler control restraining device (like Piggot hook)	0,2 %
F	Emergency egress help (like NOAH)	1,5 %
G	Demonstrated cockpit evacuation time (static on the ground)	0 – 1,0 %
H	Improved conspicuity by appropriate markings	0,4 %

# OSTIV SDP Safety Pays



Sailplane Development Panel

I	Improved conspicuity by strobe light(s) on fuselage or wingtips	1,0 %
J	Collision warning system (compatible to FLARM)	1,0 %
K	Emergency locator beacon or similar system	0,5 %
L	Side String angle of attack indicator	0,3 %
M	Acoustical stall warning system (to be specified)	up to 0,8 %
N	Glider Parachute Recovery System (GPRS)	3,0 %

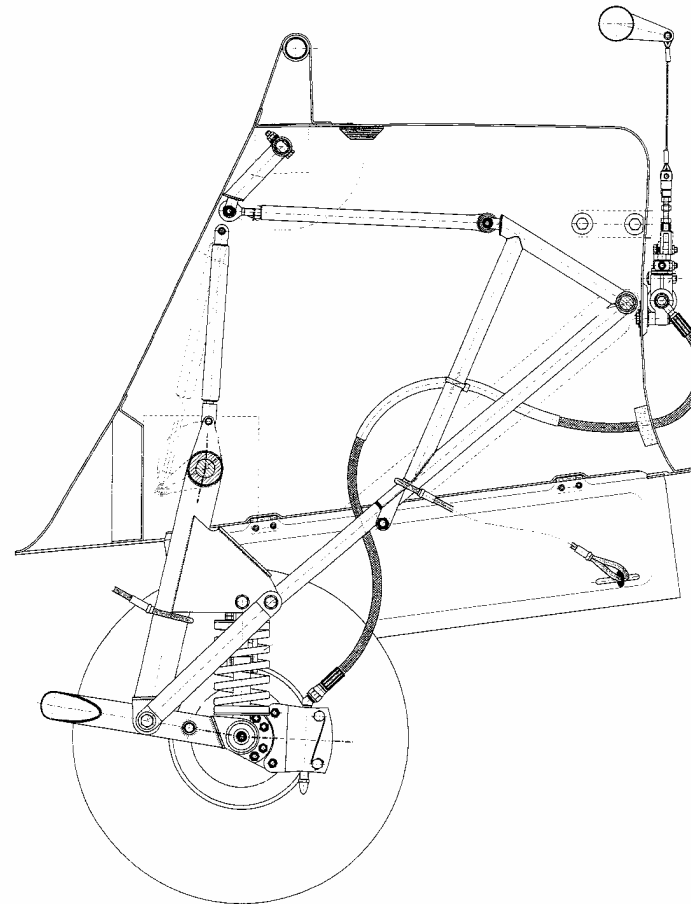


## Proposal C

### Examples

#### Item D

Landing gear  
with improved  
shock  
absorption



## Proposal C

**Examples**

**Item F**

**NOAH**

(Photo DG  
Flugzeugbau)



## Proposal C

## Examples

## Item F

## NOAH

(Photo DG  
Flugzeugbau)



## Proposal C

## Examples

## Item L

## Side String

(Photo Prof. Ernst Schoeberl)



## Proposal C

## Examples

## Item N

## GPRS

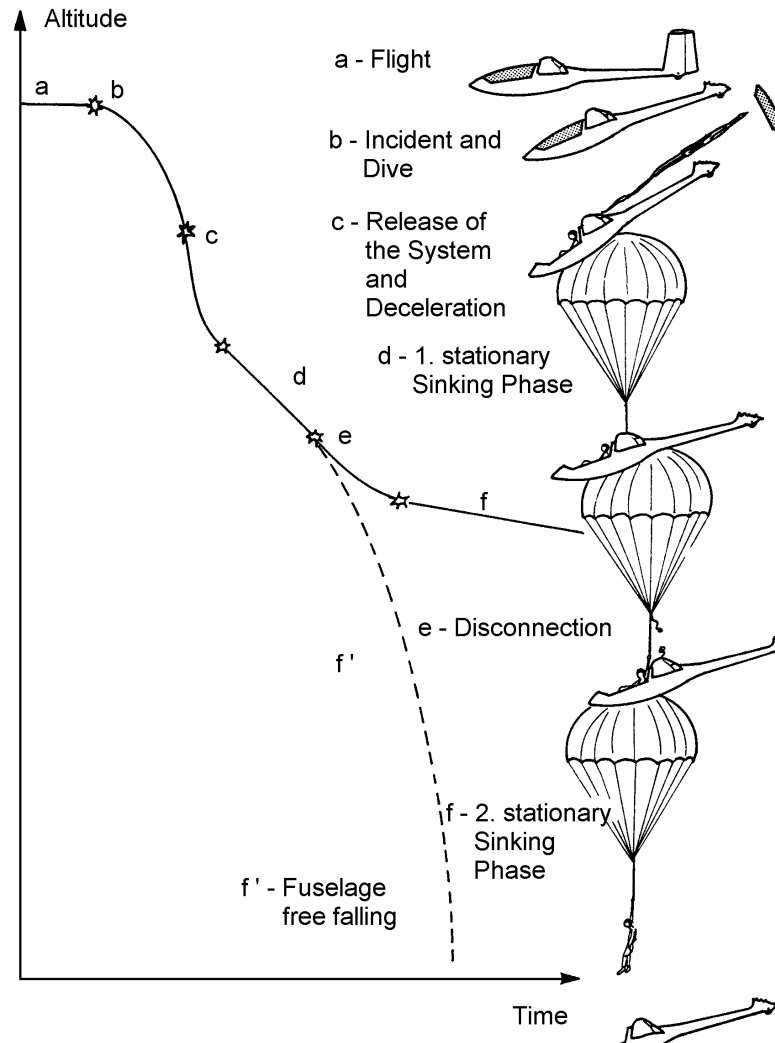
(Photo Peter. F.  
Selinger)



## Proposal C

### Example for PRS (“Kiffmeyer-System”)

(Courtesy Prof. Röger, Fachhochschule Aachen)



## Proposal C

### *The “Shopping list”*

**Other safety devices, which are still in development (like PRS), may be added to the list as they come available on the market**

## Advantages of the “6% for Safety” System

- **"6% for Safety" proposal enhances use of existing safety provisions**
- **Each safety reward will retain its value for many years**
- **It does not jeopardize existing glider types**
- **It does not favour rich pilots**
- **It is adaptable for different competition classes**



## Advantages of the “6% for Safety” System

- **No pressure on manufacturers and customers to develop new glider types**
- **Stimulation to introduce certain adaptations in existing gliders (e.g. NOAH, GPRS, ...).**
- **Open for future safety provisions when available**
- **All voluntary, no restrictions or sanctions on non-compliance**
- **Effective by offering persuasive incentive for ambitious competition pilots.**

## Challenges of the “6% for Safety“ System

- Announcement followed by an introduction in two steps
- Will possibly meet resistance and objections
- Need for a change in thinking about organising and flying gliding competitions

*Yet, if improvement of safety in gliding is considered to be a serious issue it is well worth the effort*

## Recommendation

**All three proposals are offered by OSTIV to IGC**

**IGC might want to implement proposals A and B and prepare an announcement of proposal C before the next WGC**

**First official application could be at the World Gliding Championships in 2012.**

## Recommendation

**But keep in mind:**

***Improving the Safety of Gliding cannot stand any delay!***

Questions?