KLUB
GAZETY POLSKIEJ
ÅRHUS

NIE POPRAWNE
Radio PL
Na żywo

Klub Gazety Polskiej w Aarhus
zaprasza na spotkanie
z ***Glennem A. Jørgensenem.***

Wierzymy, że spotkanie z duńskim naukowcem, który włączył się w sprawę wyjaśnienia tragedii smoleńskiej będzie wyjątkowe i pozwoli nam poznać cząstkę prawdy, która przybliża do poznania przyczyn katastrofy, w której zginął prezydent Lech Kaczyński wraz z 95 naszymi rodakami.

**Spotkanie odbywać się będzie
wjęzyku angielskim z równoległym tłumaczeniem na język polski.**

Zapraszamy - sobota 11 stycznia 2014 roku, godz. 16.00

Skæring Skole, Skæring Skolevej 200, 8250 Egå

www.niepoprawneradio.pl

”Follow those seeking the Truth, Flee from those stating they have found it”
Vaclav Havel

”Kæmp for alt hvad du har kært,
Dø om så det gælder!
Da er livet ej så svært,
Døden ikke hellere.”

Chr. Richardt 1867

”Fight for everything you hold dear,
Die if so you must,
Then Life is not so difficult,
Death Not Either”

Chr. Richardt 1867

Agenda of Todays Meeting

- Authors Background
- Data
- The Basic Model and How Equations are Solved
- The Main Results of My Work
- Comparison to the Work of Others
- Conclusion
- Questions
- References and Links to additional information

Authors Background

- Engineer with a master degree in fluid dynamics and structural analysis in 1988.
- Worked during my study as a co-teacher within fluid dynamics at the Danish Technical University (DTU).
- Has completed the courses held by the institute of Fluid Dynamics at DTU related to aviation and building of aircrafts.
- Working past 15 years as consultant performing various simulations and analysis, including structural FEM analysis.
- In free time a privat pilot since 1982 flying single engine aircrafts (C172, PA28) for pleasure purpose only. (No military aviation experience. No Jet plane experience.)
- I am NOT a professor from DTU, I am not working for DTU.

How did I get Involved in this work?

- Working collegue from Poland.
- Like many other engineers and scientists around the world working hard on this subject.
- Commitment towards society to come closer to the truth.
- Today Poland, Tomorrow Denmark.
- No Polish relatives, No financial interest
- All work is on a 100% unpaid voluntary basis.
- Travels to Poland etc. are by my own expense.

The plane's left horizontal stabilizer position on satellite pictures

Russia RSS

Data from MAK report

This document is an English translation of the Final Report on the accident on 10 April 2010, on Smolensk "Severny" airdrome, to the Tupolev Tu-154M tail number 101 of the Republic of Poland.

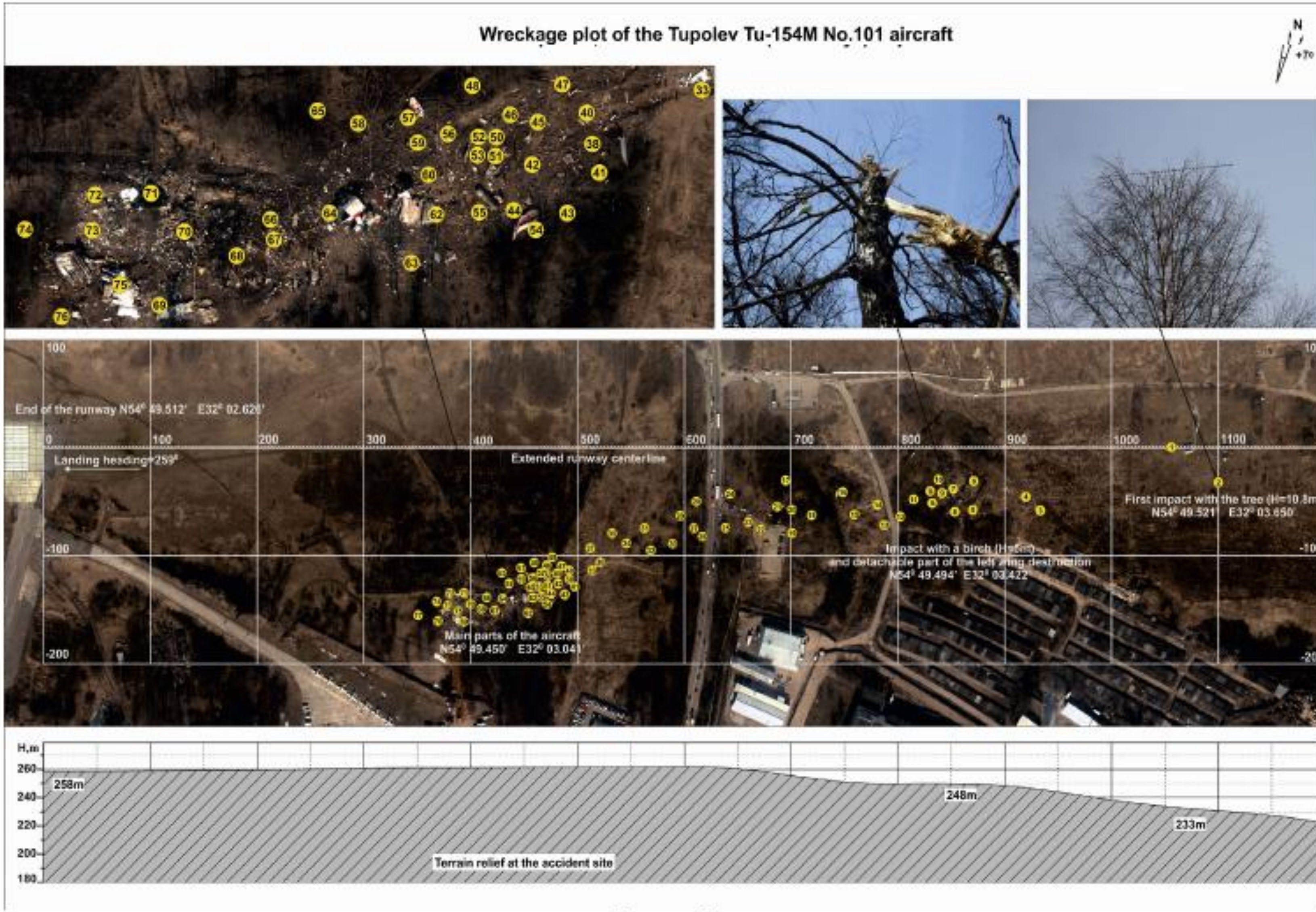
The translation was done as accurate as the translation may be to facilitate the understanding of the Final Report for non-Russian speaking people. The use of this translation for any purpose other than for the prevention of future accidents could lead to erroneous interpretations.

In case of any difference or misunderstanding the original text in Russian is the work of reference.

INTERSTATE AVIATION COMMITTEE

AIR ACCIDENT INVESTIGATION COMMISSION

FINAL REPORT



Wreckage plot of the Tupolev Tu-154M No.101 aircraft
End of the runway N54° 49.512' E32° 02.626'
Landing heading 259°
Extended runway centerline
First impact with the tree (H=10.8m)
N54° 49.521' E32° 03.650'
Main parts of the aircraft
N54° 49.450' E32° 03.041'
Terrain relief at the accident site
258m
248m
233m

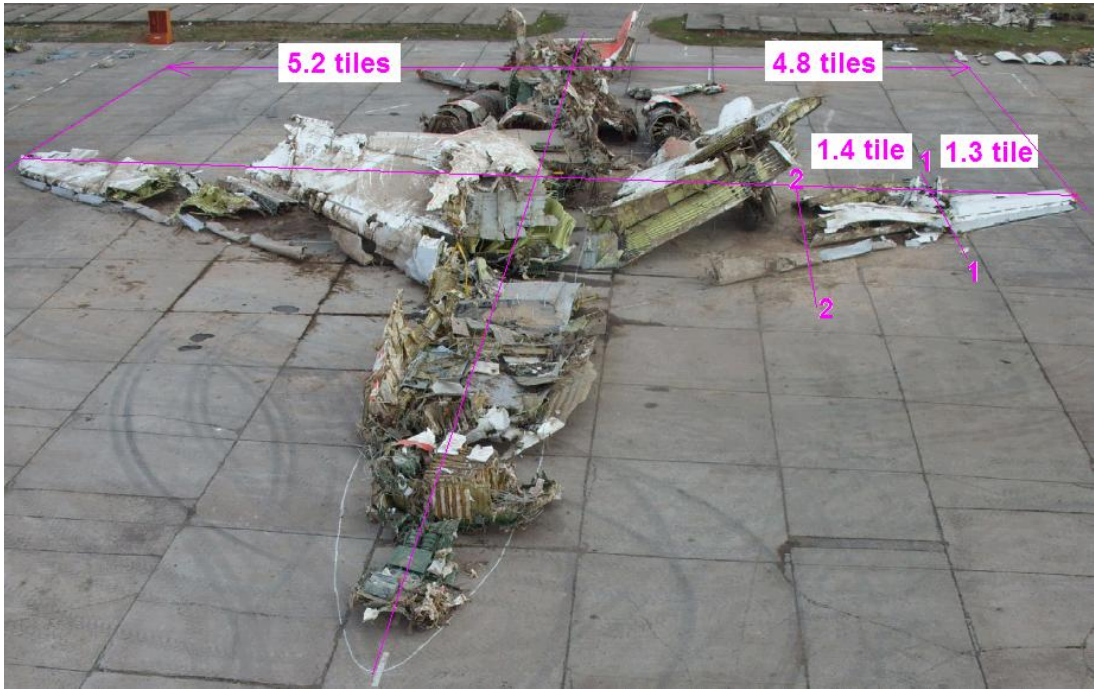
Figure 35

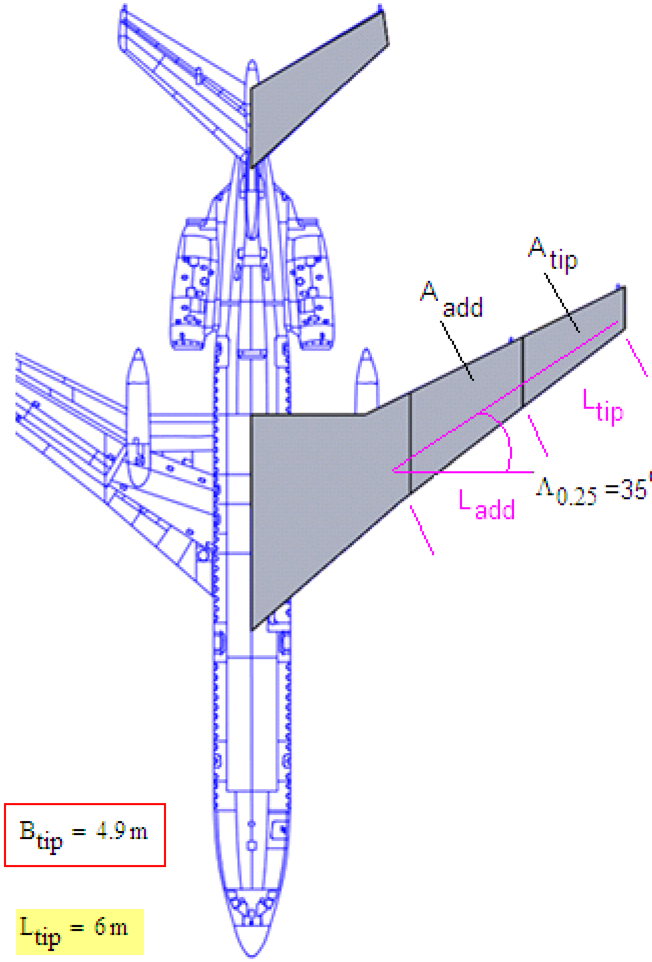
The parts never found are indicated with white. This picture speeks for itself.

Figure 31

Figure 32

Figure 30





$N_{tiles} := (5.2 + 4.8)$ $\Delta_{R\_L} := (5.2 - 4.8)$

$L_{span} := 37.55 \cdot m$

$B_{tile} := \frac{L_{span}}{N_{tiles}}$ Tile width $B_{tile} = 3.755\,m$

$L_{miss} := \Delta_{R\_L} \cdot \frac{L_{span}}{N_{tiles} + \Delta_{R\_L}}$ $L_{miss} = 1.4\,m$

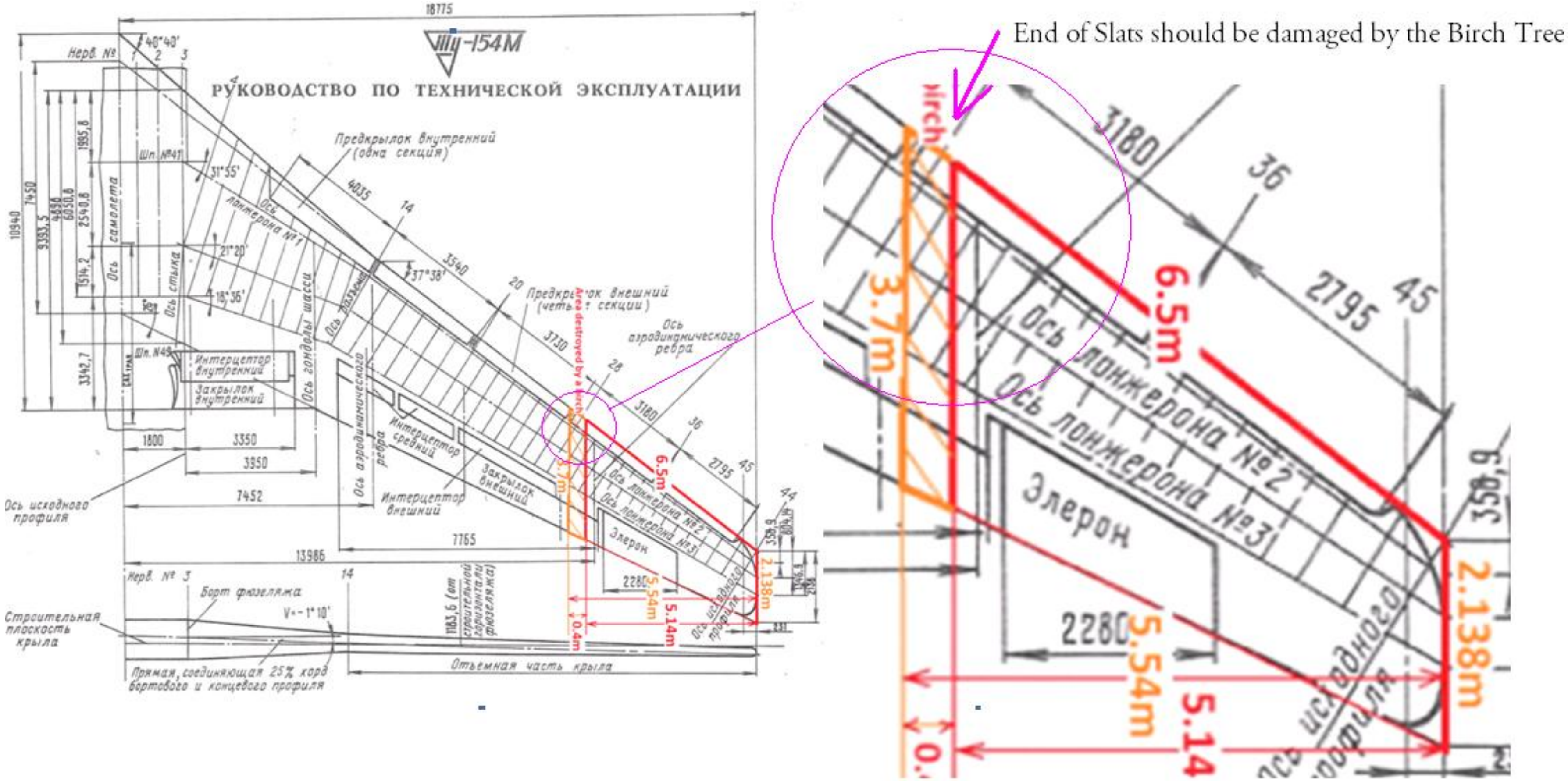
$\Lambda_{0.25} := 35 \cdot deg$ Dihedral angle

$B_{tip} := 1.3 \cdot B_{tile}$ Tip width $B_{tip} = 4.9\,m$

$L_{tip} := \frac{B_{tip}}{\cos(\Lambda_{0.25})}$ $L_{tip} = 6\,m$

$B_{add} := 1.4 \cdot B_{tile}$ $B_{add} = 5.3\,m$

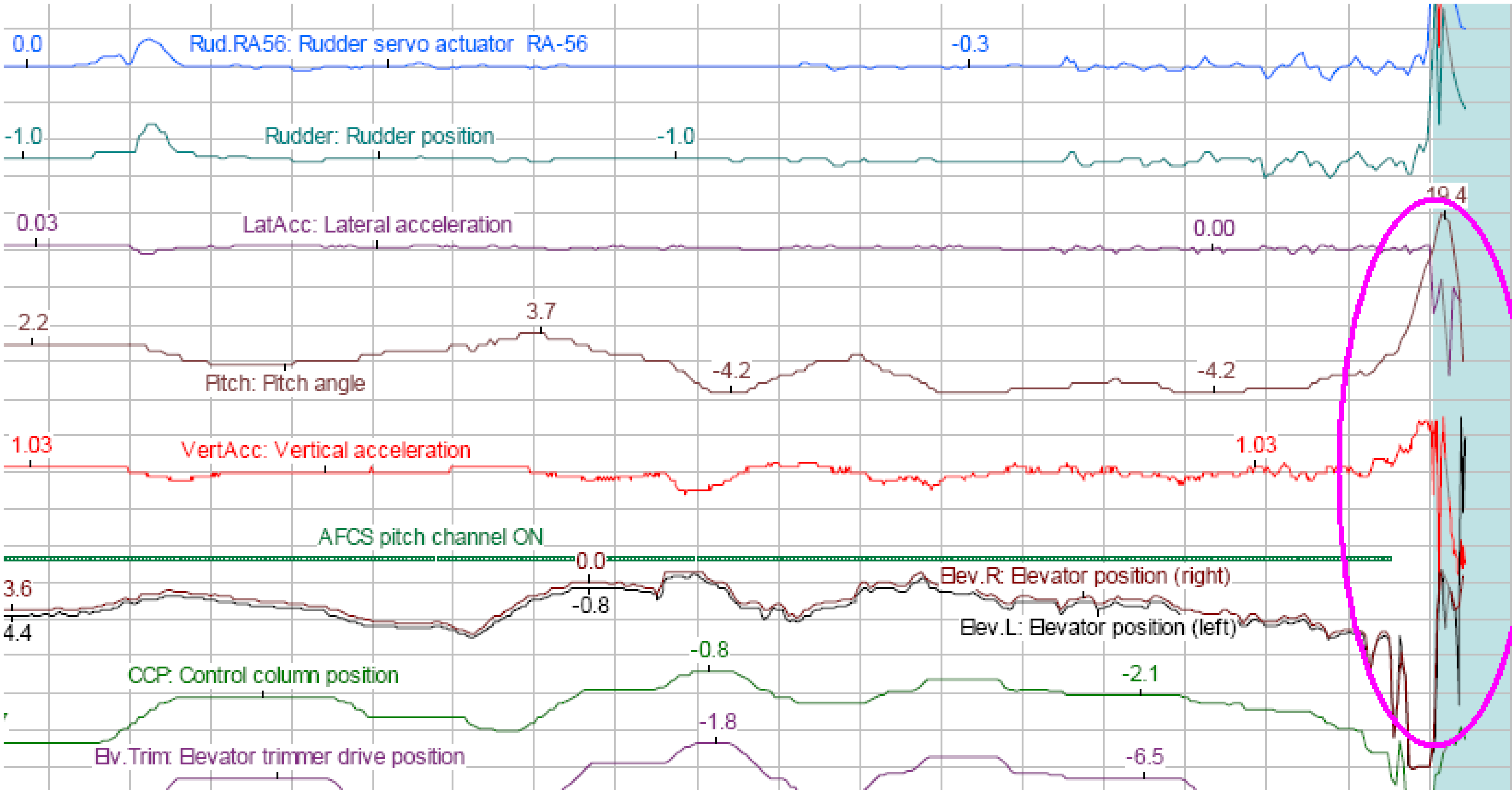
$L_{add} := \frac{B_{add}}{\cos(\Lambda_{0.25})}$ $L_{add} = 6.4\,m$



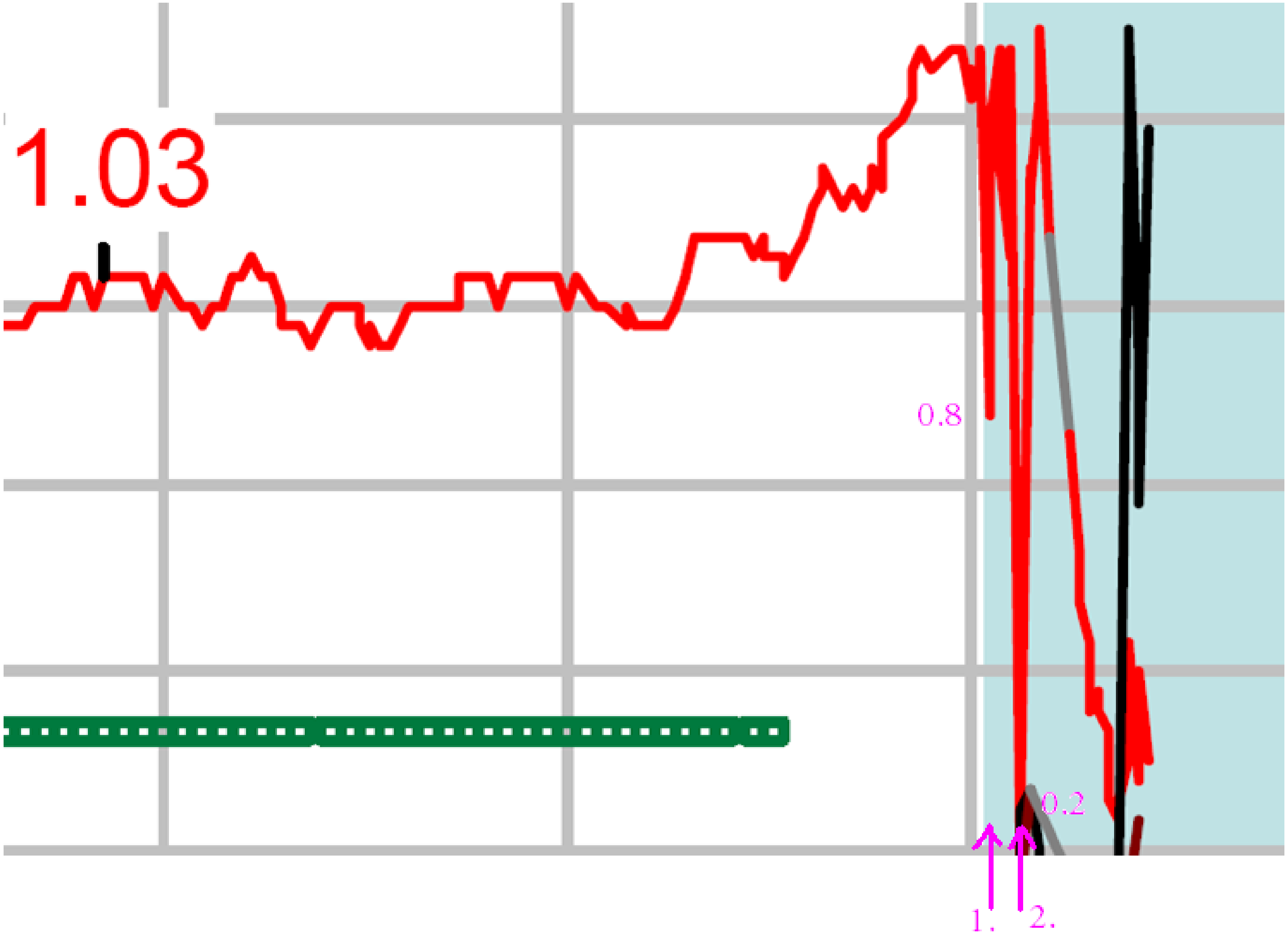
Drawing of the wing of the Tu-154M (P101) . Source Professor Kowaleczko.

End of Slats is not delmolished by the Birch at all. This is physical impossible had the wing hit the Tree.

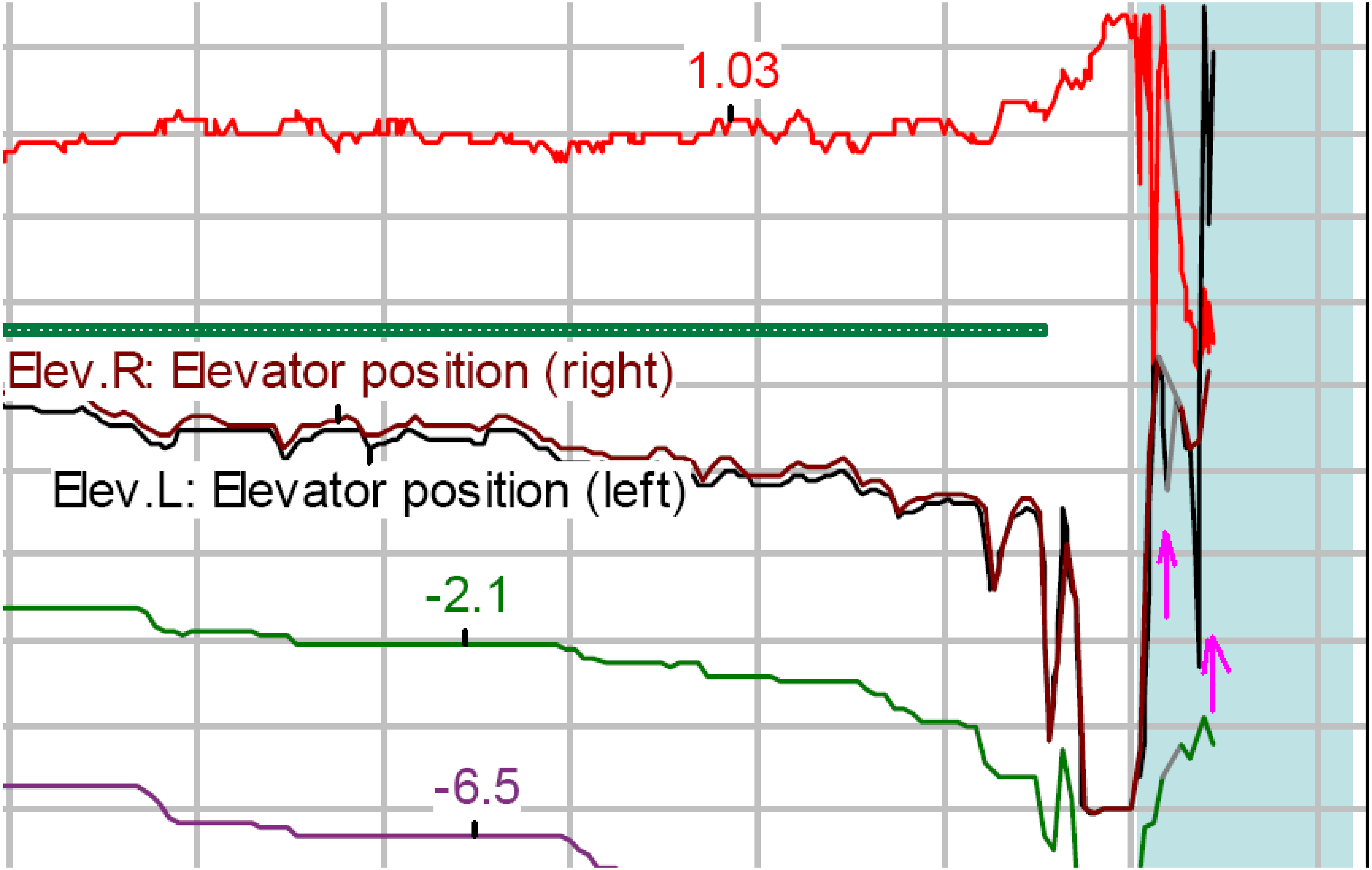

LIFE NEWS

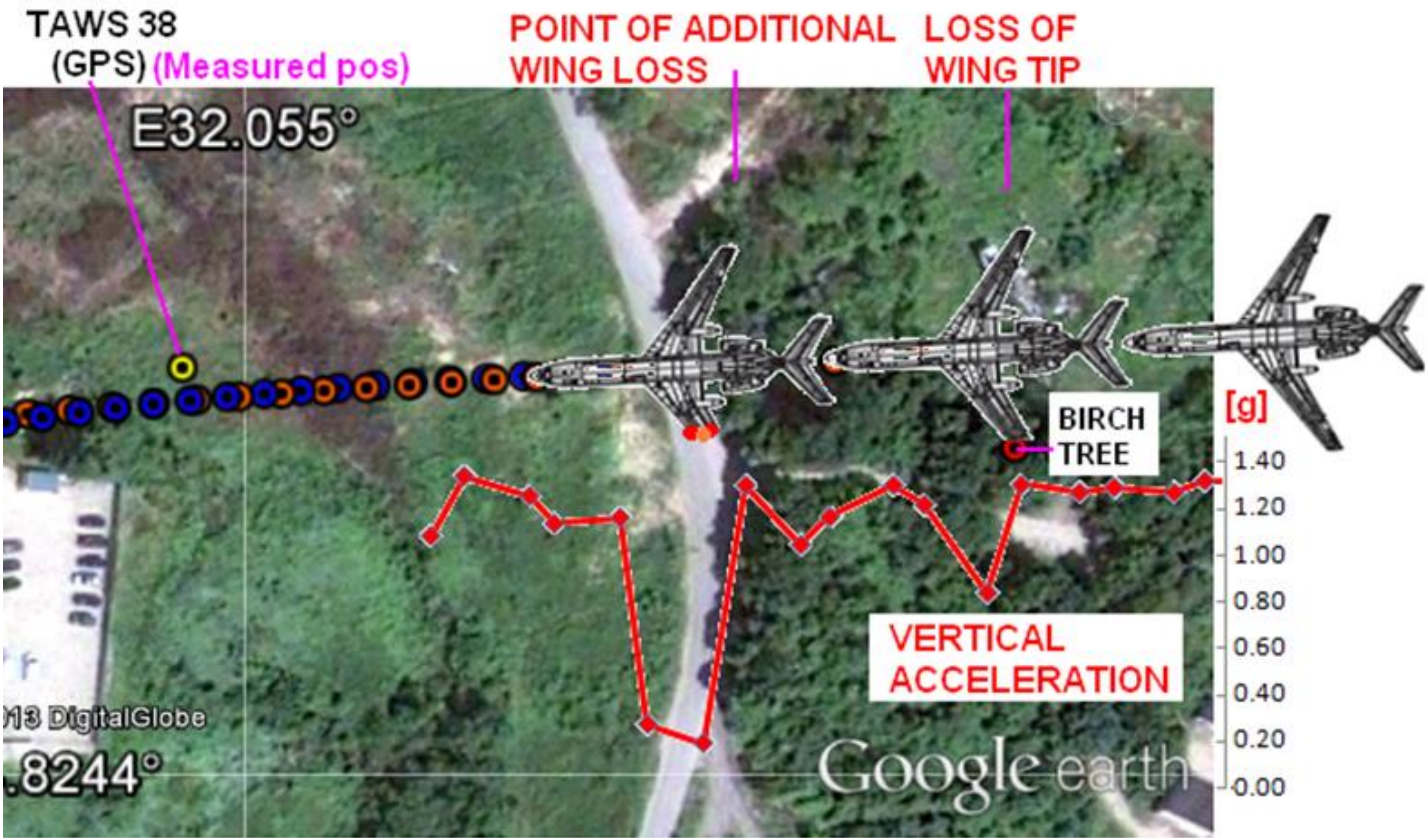


0.0
Rud.RA56: Rudder servo actuator RA-56
-0.3
-1.0
Rudder: Rudder position
-1.0
0.03
LatAcc: Lateral acceleration
0.00
19.4
2.2
3.7
Pitch: Pitch angle
-4.2
-4.2
1.03
VertAcc: Vertical acceleration
1.03
AFCS pitch channel ON
0.0
3.6
Elev.R: Elevator position (right)
-0.8
4.4
Elev.L: Elevator position (left)
-0.8
CCP: Control column position
-2.1
-1.8
Elv.Trim: Elevator trimmer drive position
-6.5



The Recorded Vertical Acceleration. Note the two distinct drops in vertical acceleration.

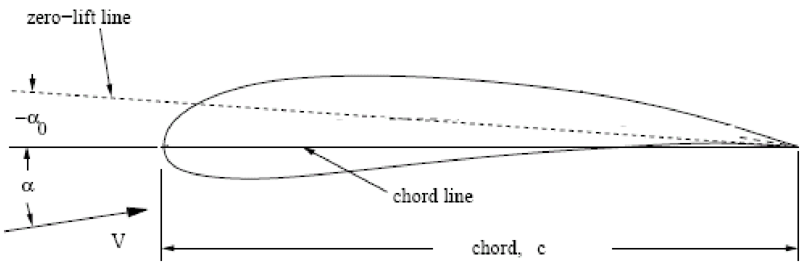

1.03
Elev.R: Elevator position (right)
Elev.L: Elevator position (left)
-2.1
-6.5


TAWS 38
(GPS) (Measured pos)
POINT OF ADDITIONAL
WING LOSS
LOSS OF
WING TIP
E32.055°
BIRCH
TREE
[g]
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
VERTICAL
ACCELERATION
013 DigitalGlobe
.8244°
Google earth


CASE II
CASE I

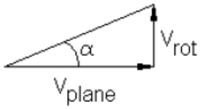
MODEL

- Assuming fixed control and semi-steady state conditions calculating *changes* from initial starting point.
- Neglecting terms that are quadratic in small perturbations/variables.
- Neglecting stabilizing secondary effects . (Induced change on tail forces etc. Including these will typ. enhance the conclusion, e.g. produce less roll)
- Linear relationship between angle of attack and force of lift.



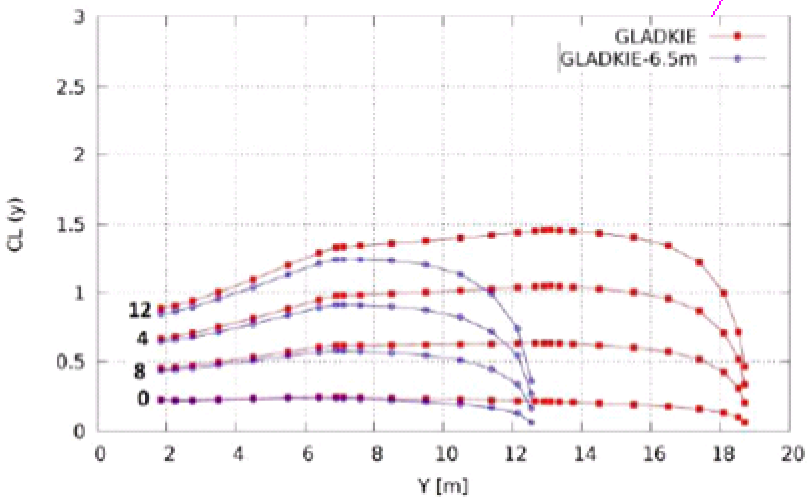
Geometry of a typical airfoil section.

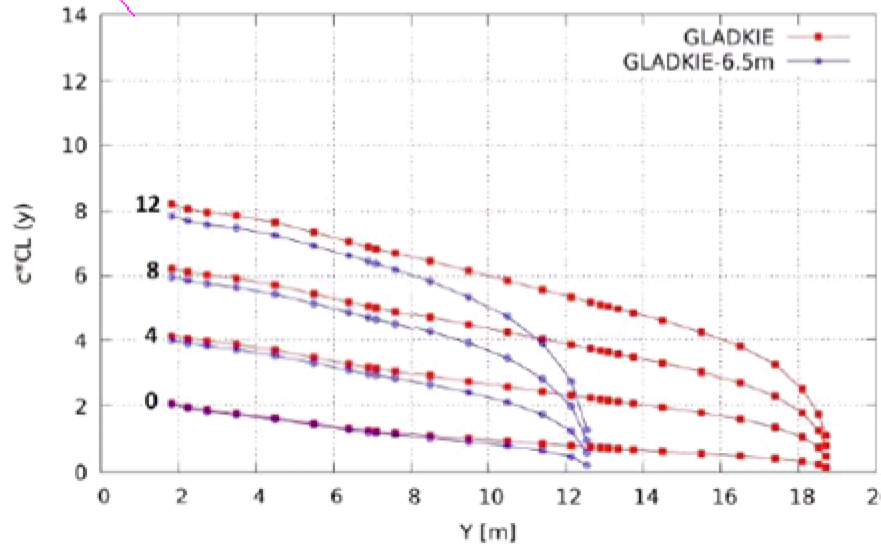
- Newton's II law of motion.
- Simple drag resistance to angular roll motion is included. (Has no impact, can be neglected)
- Inclusion of local change in angle of attack due to rotation.

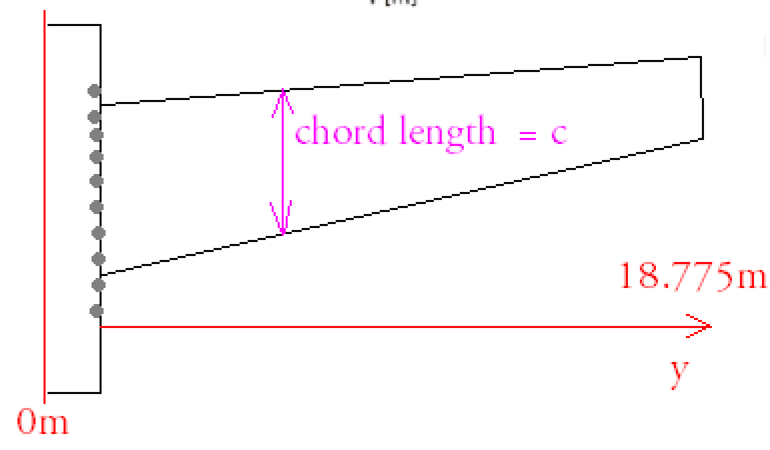


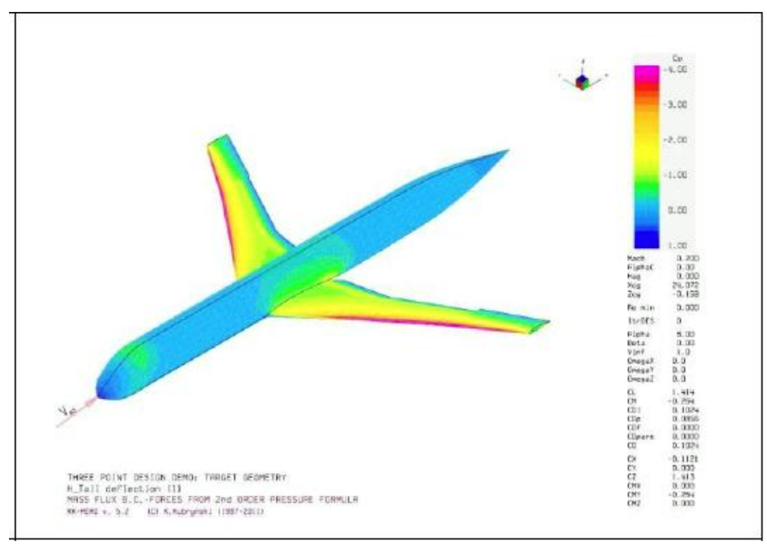
- Vz at the point of the birch tree is processed through a time wise double integration of the measured vertical acceleration
- X,Y,Z at site of crash
- Weight in landing mode as estimated in MAK. (78.6 ton)
- Estimated Moment of Inertia about the length axis, Ixx, scaled from similar airplane (727-200)
- Vplane = 265km/hr

This times c = This









Top figures and bottom right figure from Kowaleczko.

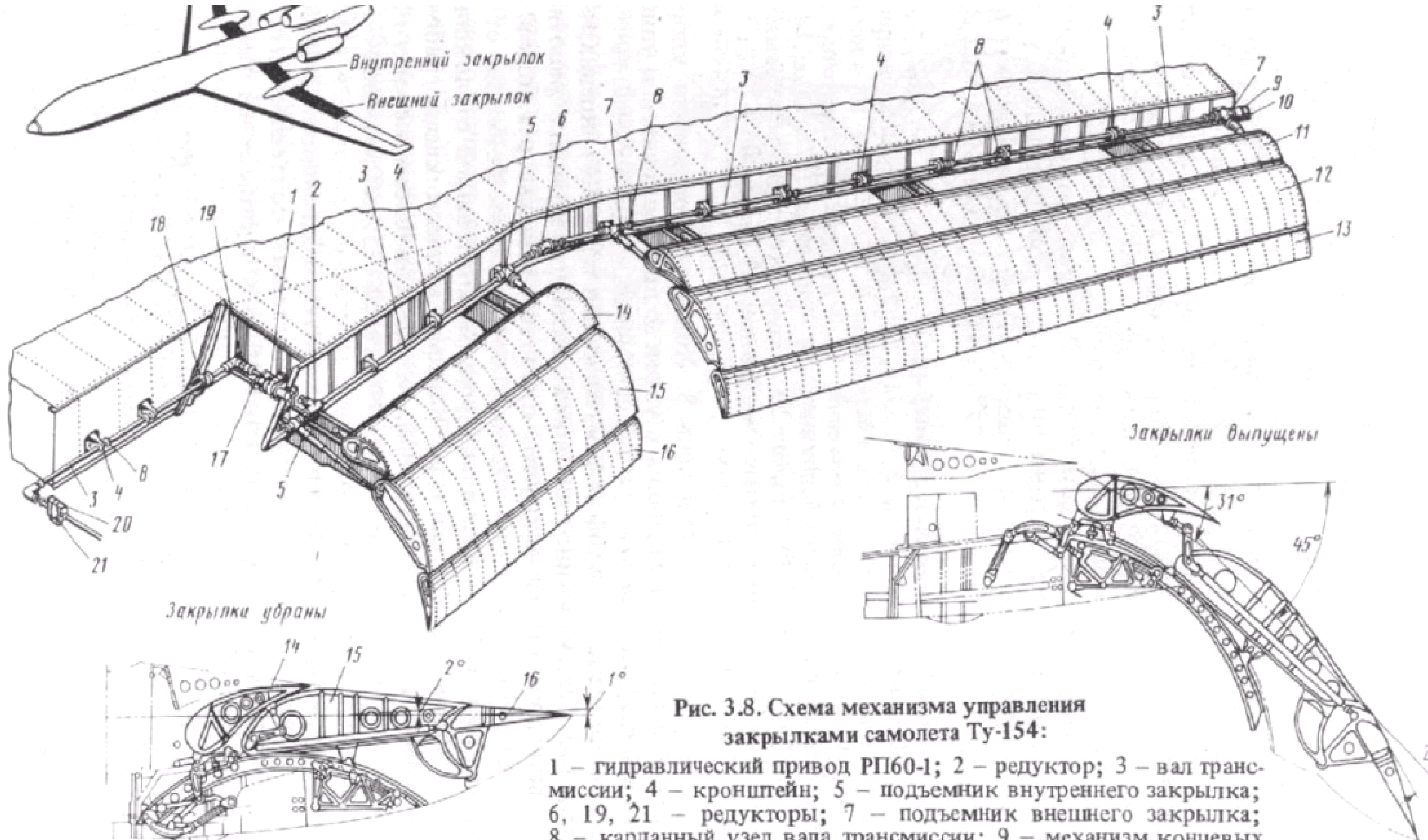
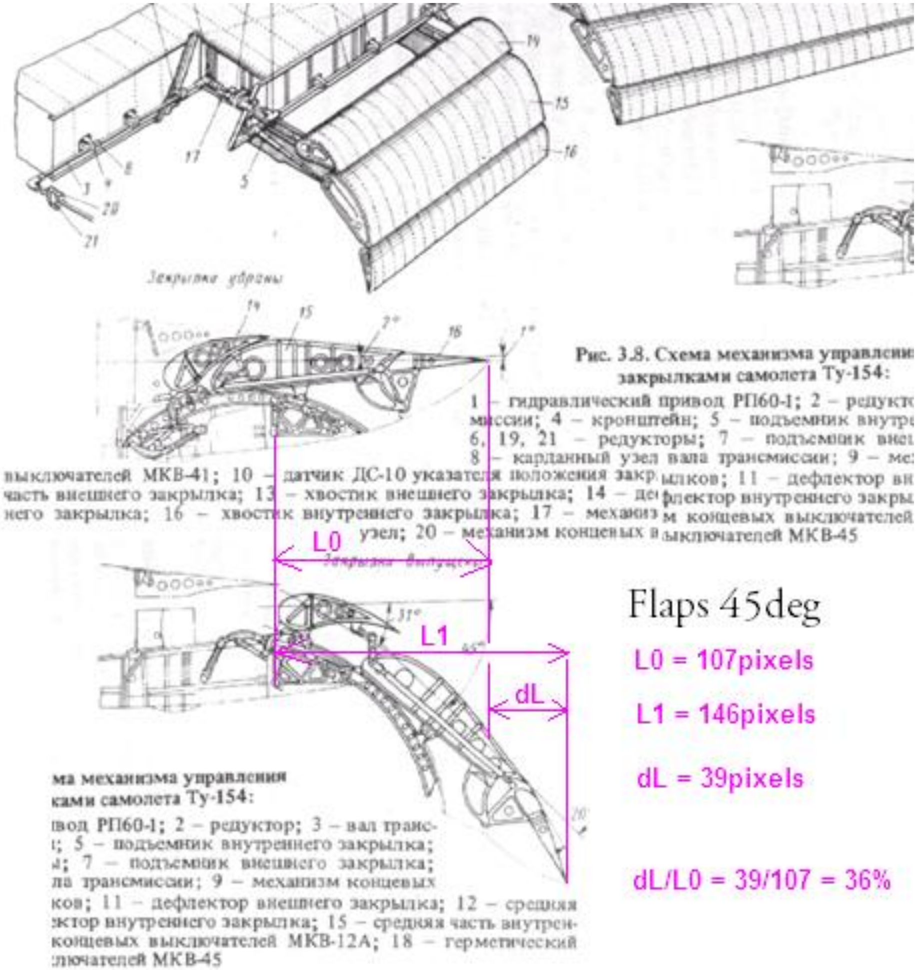


Рис. 3.8. Схема механизма управления закрылками самолета Ту-154:

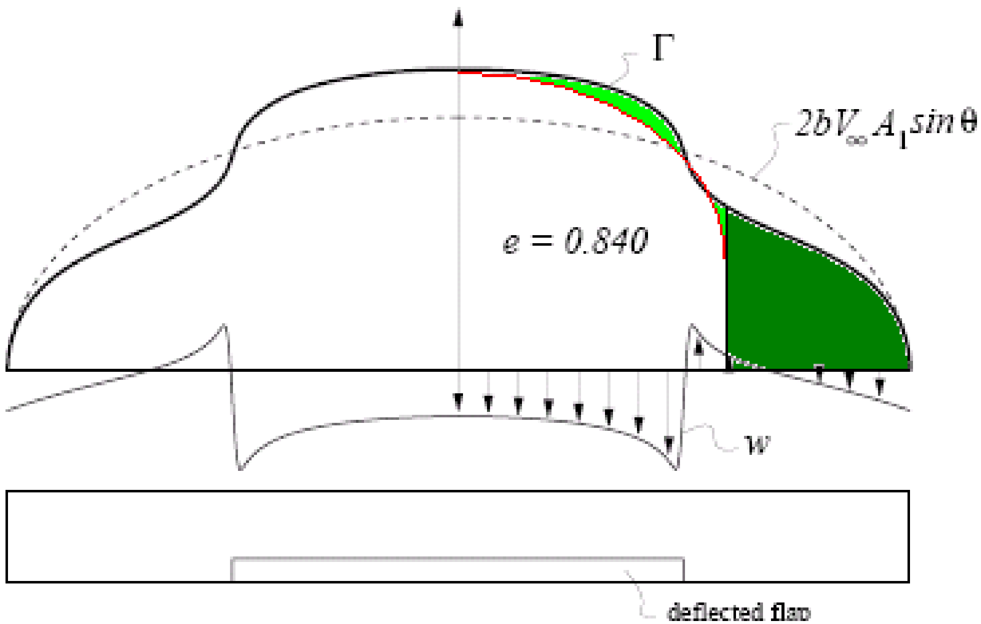
1 – гидравлический привод РП60-1; 2 – редуктор; 3 – вал трансмиссии; 4 – кронштейн; 5 – подъемник внутреннего закрылка; 6, 19, 21 – редукторы; 7 – подъемник внешнего закрылка; 8 – карданный узел вала трансмиссии; 9 – механизм концевых выключателей МКВ-41; 10 – датчик ДС-10 указателя положения закрылков; 11 – дефлектор внешнего закрылка; 12 – средняя часть внешнего закрылка; 13 – хвостик внешнего закрылка; 14 – дефлектор внутреннего закрылка; 15 – средняя часть внутреннего закрылка; 16 – хвостик внутреннего закрылка; 17 – механизм концевых выключателей МКВ-12А; 18 – герметический узел; 20 – механизм концевых выключателей МКВ-45

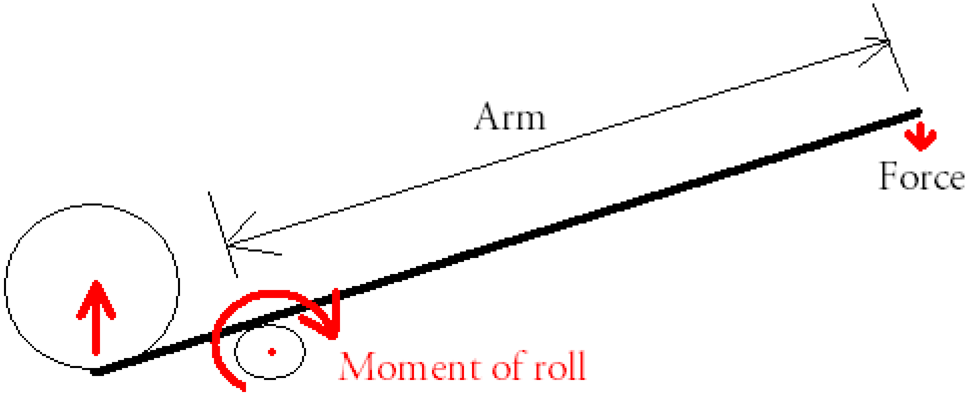

Закрылки убраны
Рис. 3.8. Схема механизма управлени
закрылками самолета Ту-154:
Закрылки выпущены
L0
L1
dL
Flaps 45deg
L0 = 107pixels
L1 = 146pixels
dL = 39pixels
dL/L0 = 39/107 = 36%
ма механизма управления
ками самолета Ту-154:

Effects of trailing edge flaps

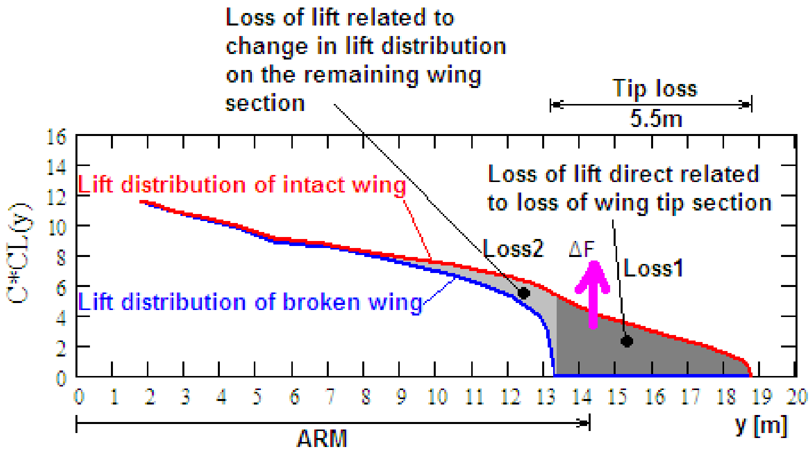
Deflection of a part-span trailing edge flap will usually cause a significant distortion in the load distribution, producing a significant increase in induced drag. The figure shows the constant-chord wing case, with a central flap deflected downward 15°. The loading is strongly non-elliptic, and the span efficiency has decreased to 0.840. Note also the strongly non-uniform downwash distribution resulting from this distorted loading.

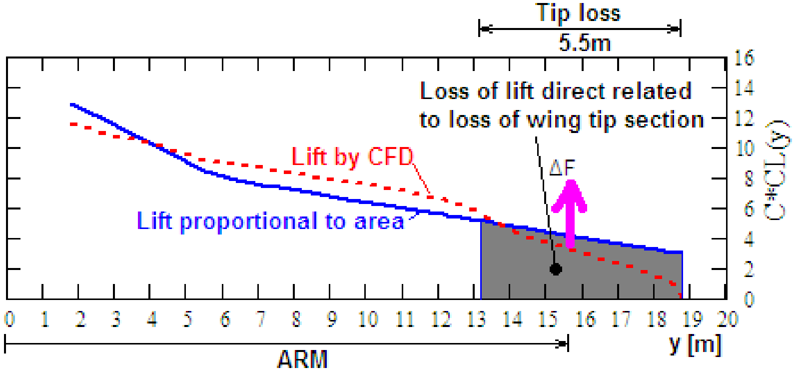
3

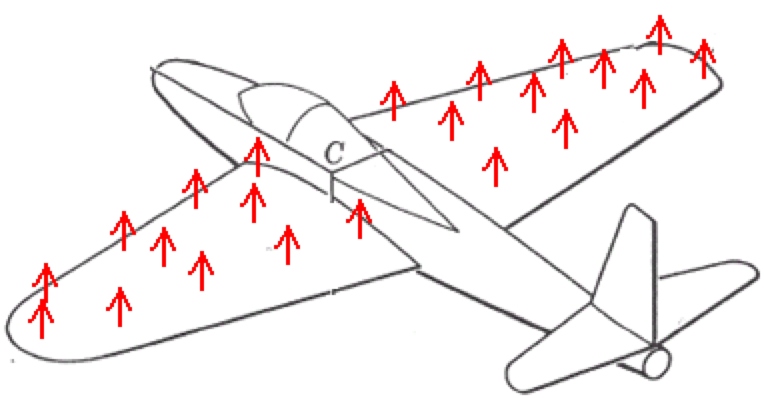




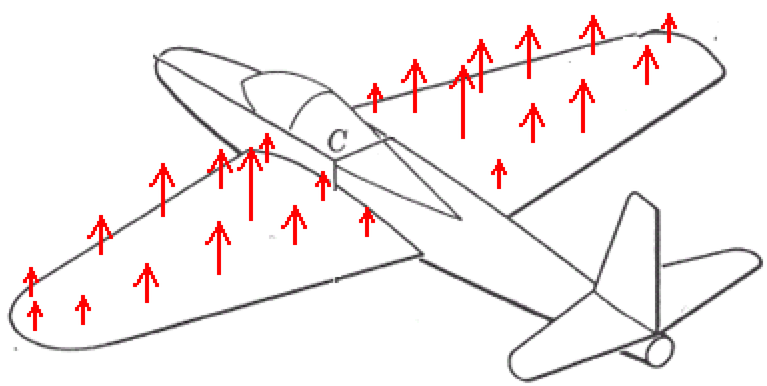
Moment = Force x Arm



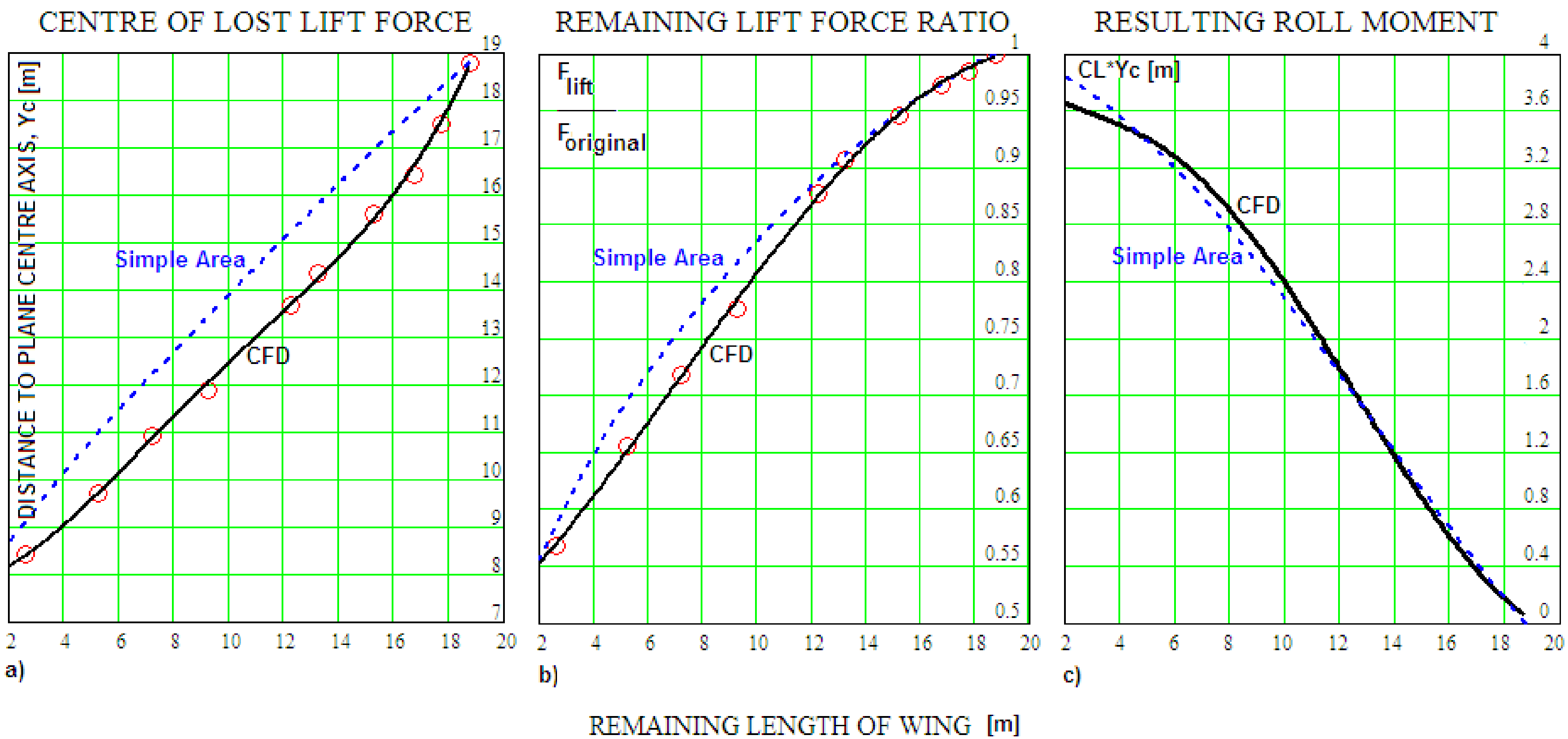




EVEN DISTRIBUTION



NON-EVEN DISTRIBUTION

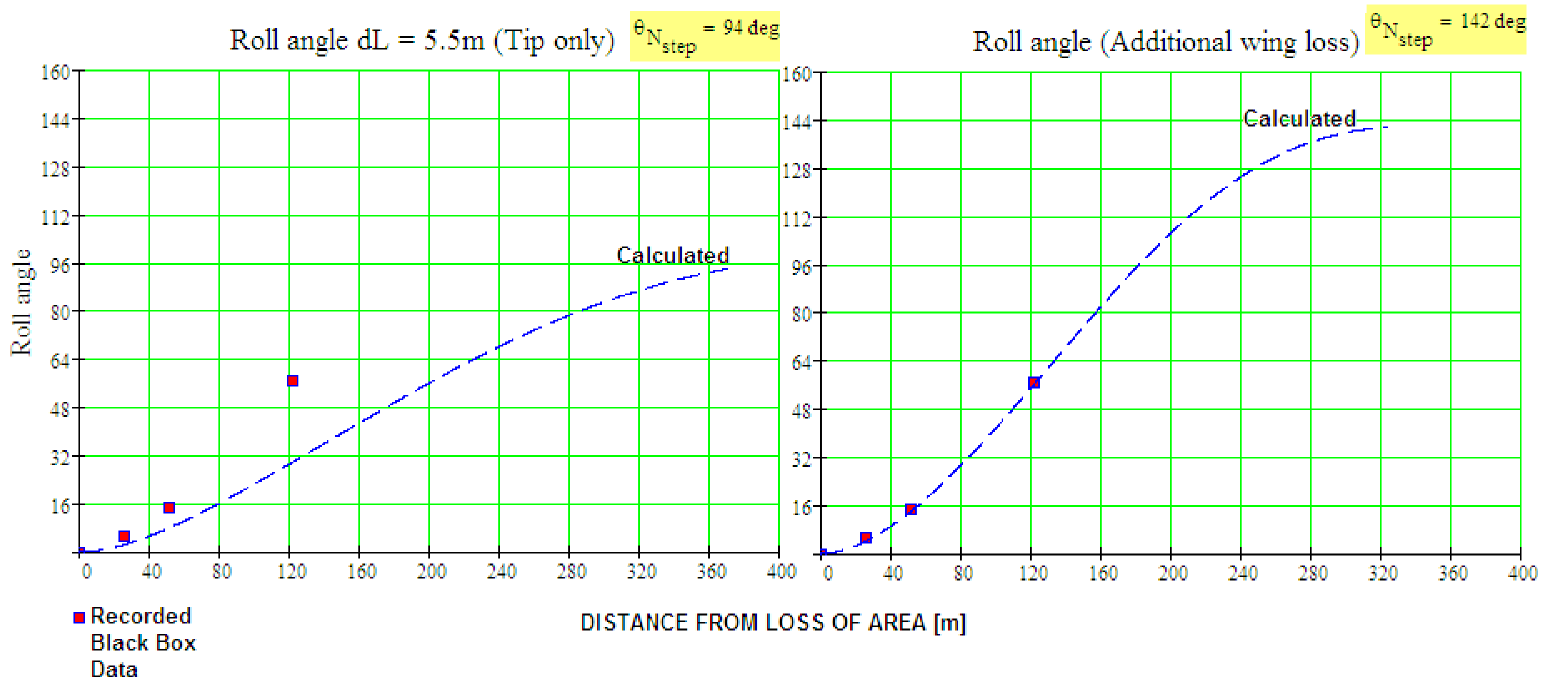

CENTRE OF LOST LIFT FORCE
DISTANCE TO PLANE CENTRE AXIS, Yc [m]
Simple Area
CFD
a)
REMAINING LIFT FORCE RATIO
F lift / F original
Simple Area
CFD
b)
RESULTING ROLL MOMENT
CL*Yc [m]
CFD
Simple Area
c)
REMAINING LENGTH OF WING [m]

VERY CONSERVATIVE SIMULATION BASED ON INPUT FROM KOWALECZKO.

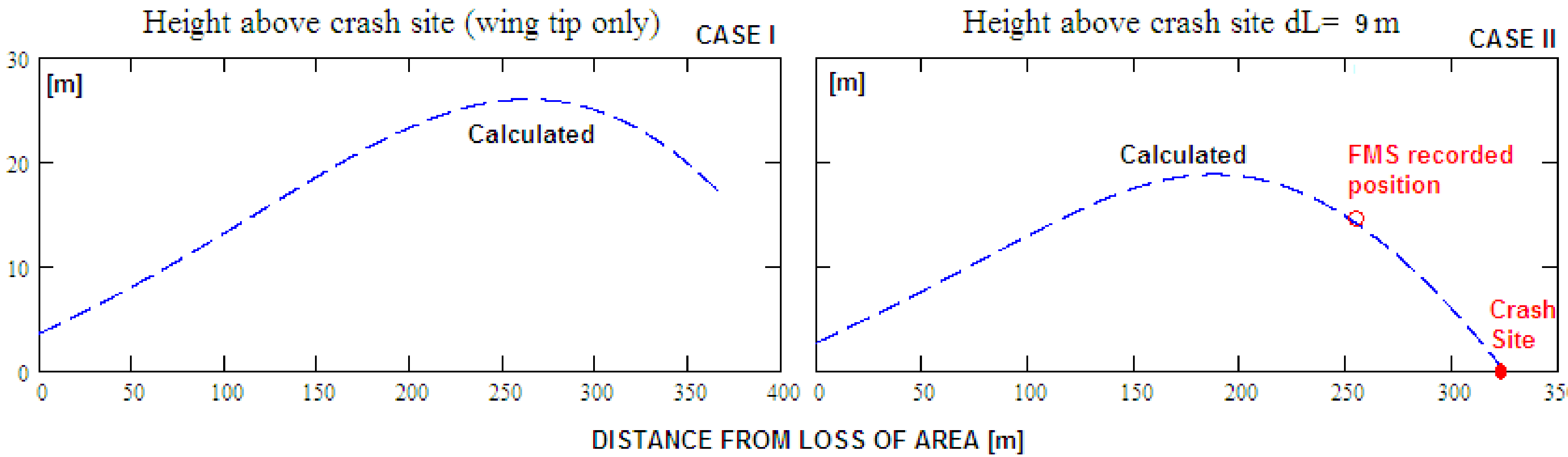
Exaggerated lift loss = 9% (corresponds to about 10% lift loss by CFD method)

No Slats

Underestimated chord length (width of wing).



The squares are recorded roll angles as pr. black box data. Lines are simulated roll angles.



Left figure: The simulated height above the crash site in case of wing tip loss only assuming exaggerated lift loss conditions.

Right figure: The simulated height above the crash site assuming the additional loss of 15m2 wing area 47m further downstream at the point of the second dip in recorded vertical acceleration.

Reported Wing Fragment Locations

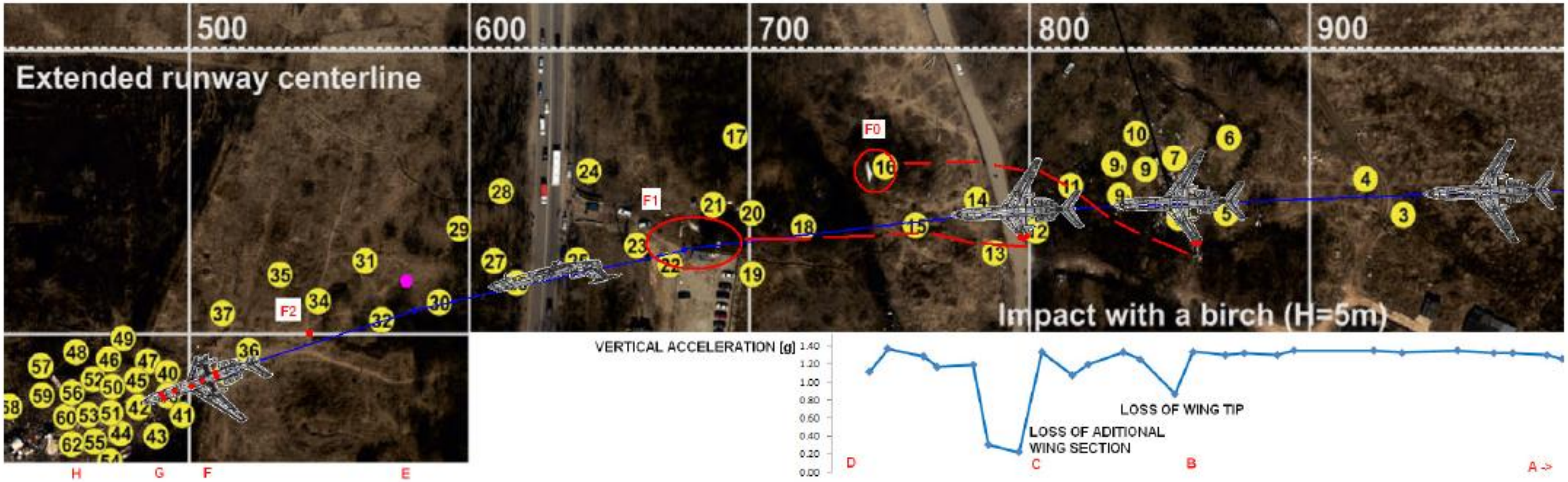
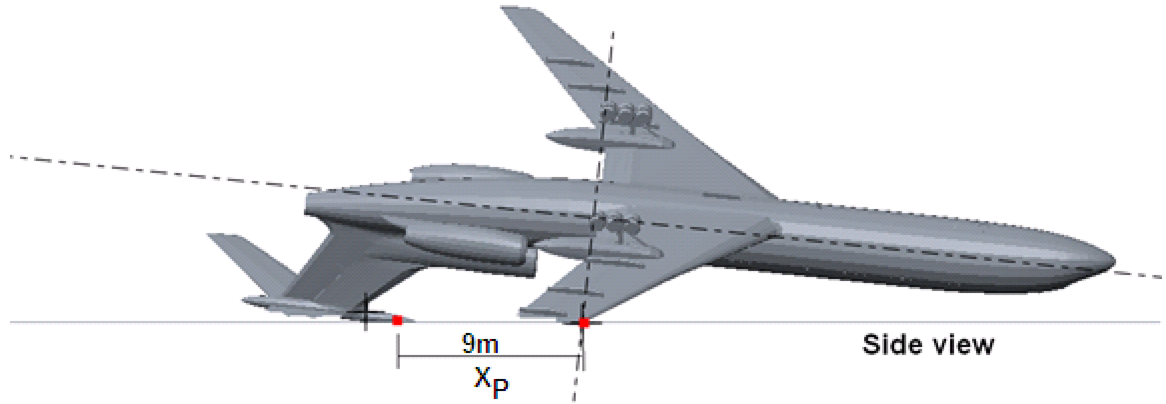


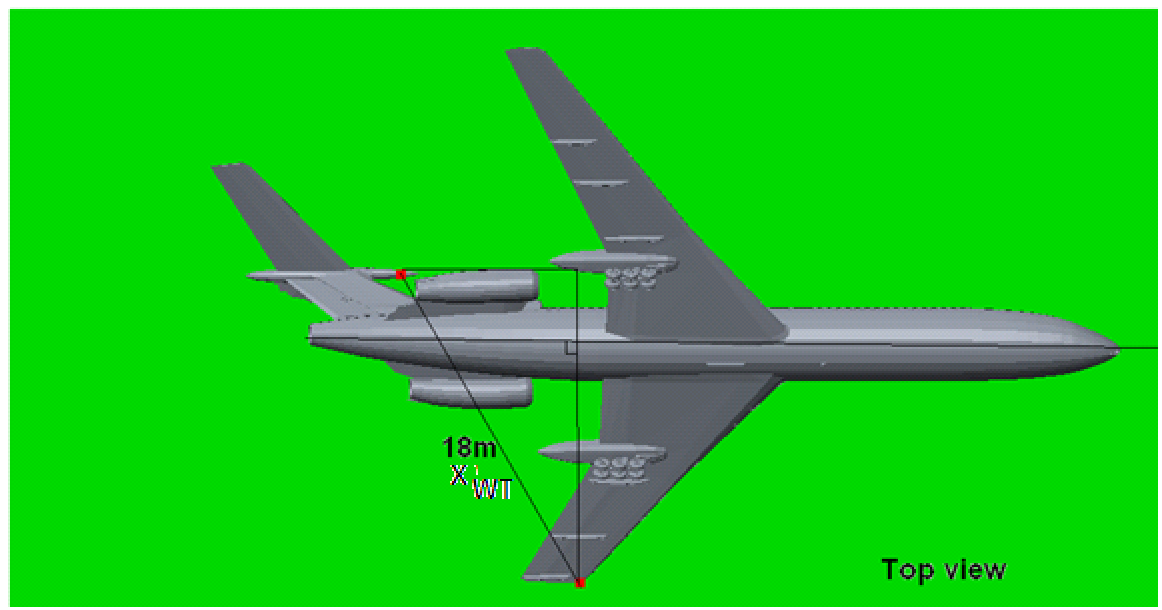
Figure 9. The found height trajectory together with the measured vertical acceleration (G-force) as a function of lateral position assuming the first impact took place at the lateral position of the birch tree of interest.

20	Fragment of left slat №23 drawing. 154.8336.23.100.
21	Fragment of left slat, flap carriage, left wing deflector.
22	Fragment of inner flap of the left wing.
23	Fragment of the left wing in the tree trunk.
24	Fragment of left wing flap.

ORIENTATION OF PLANE AT CRASH (MAK)

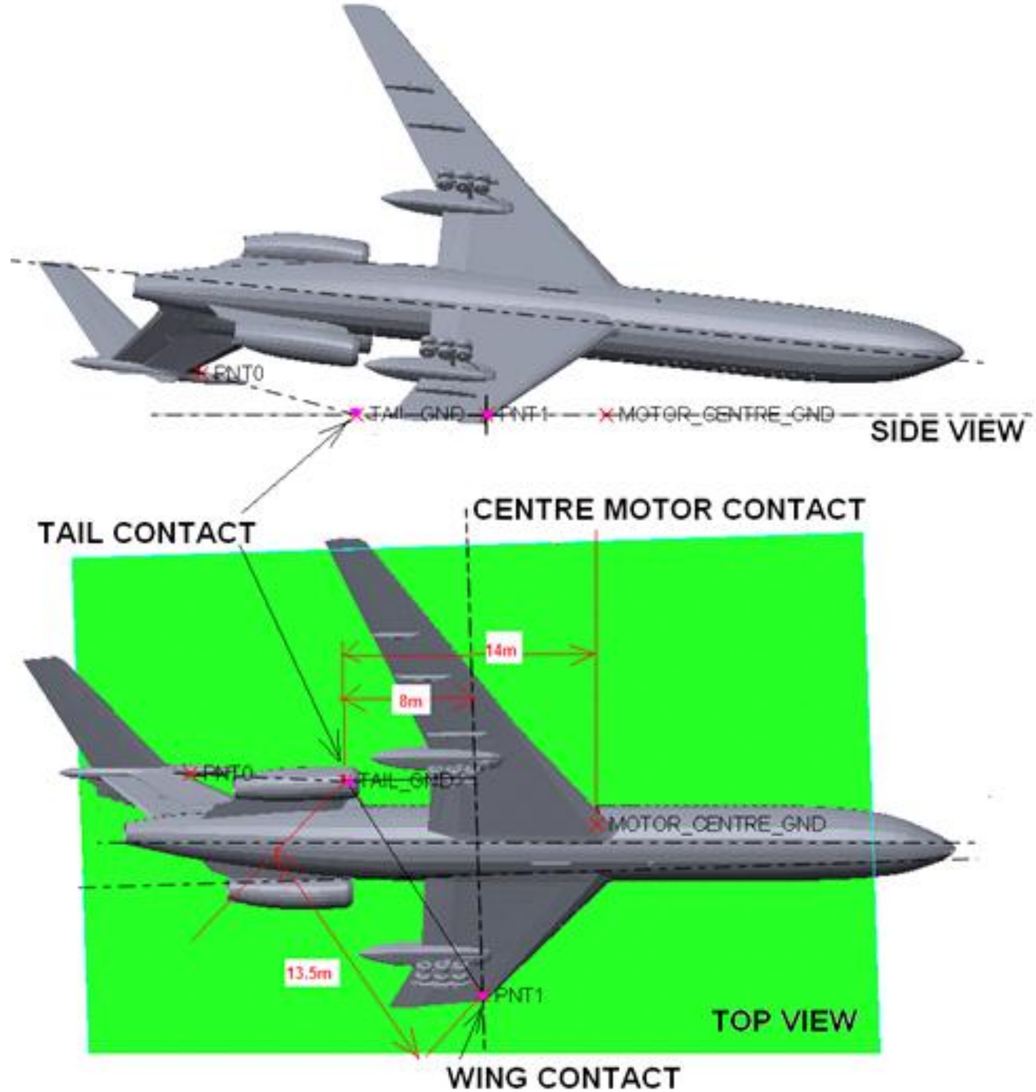
- 150° ROLL,
- -6 ° INCLINATION,
- ONLY LOSS OF WING TIP

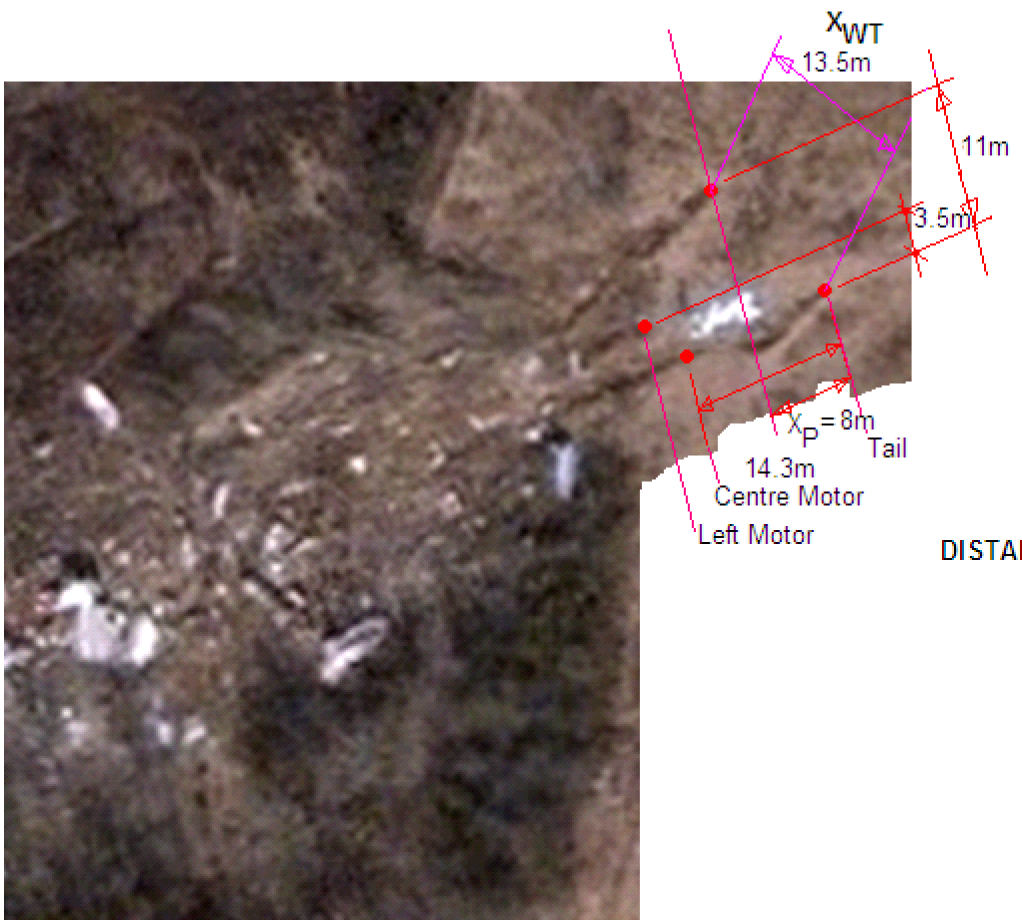




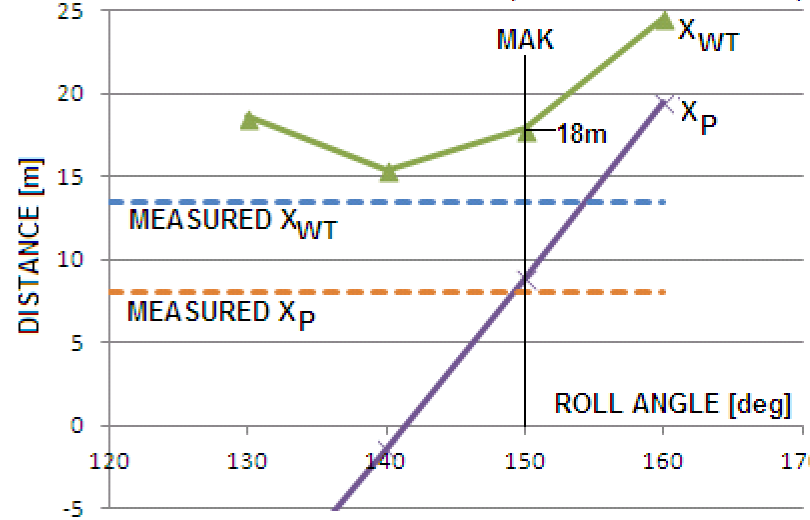
ORIENTATION OF PLANE AT CRASH (CASE II)

- 132° ROLL,
- -6 ° INCLINATION,
- $\varepsilon \approx$ -15deg ,

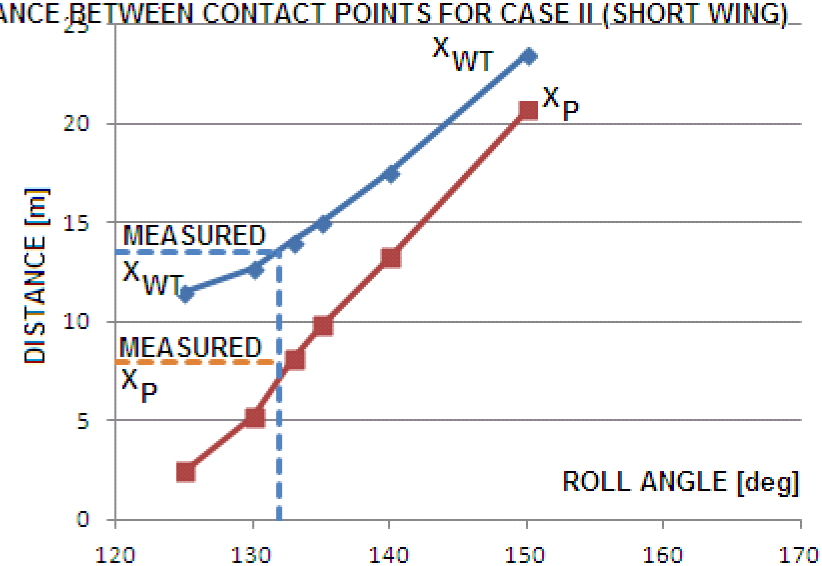


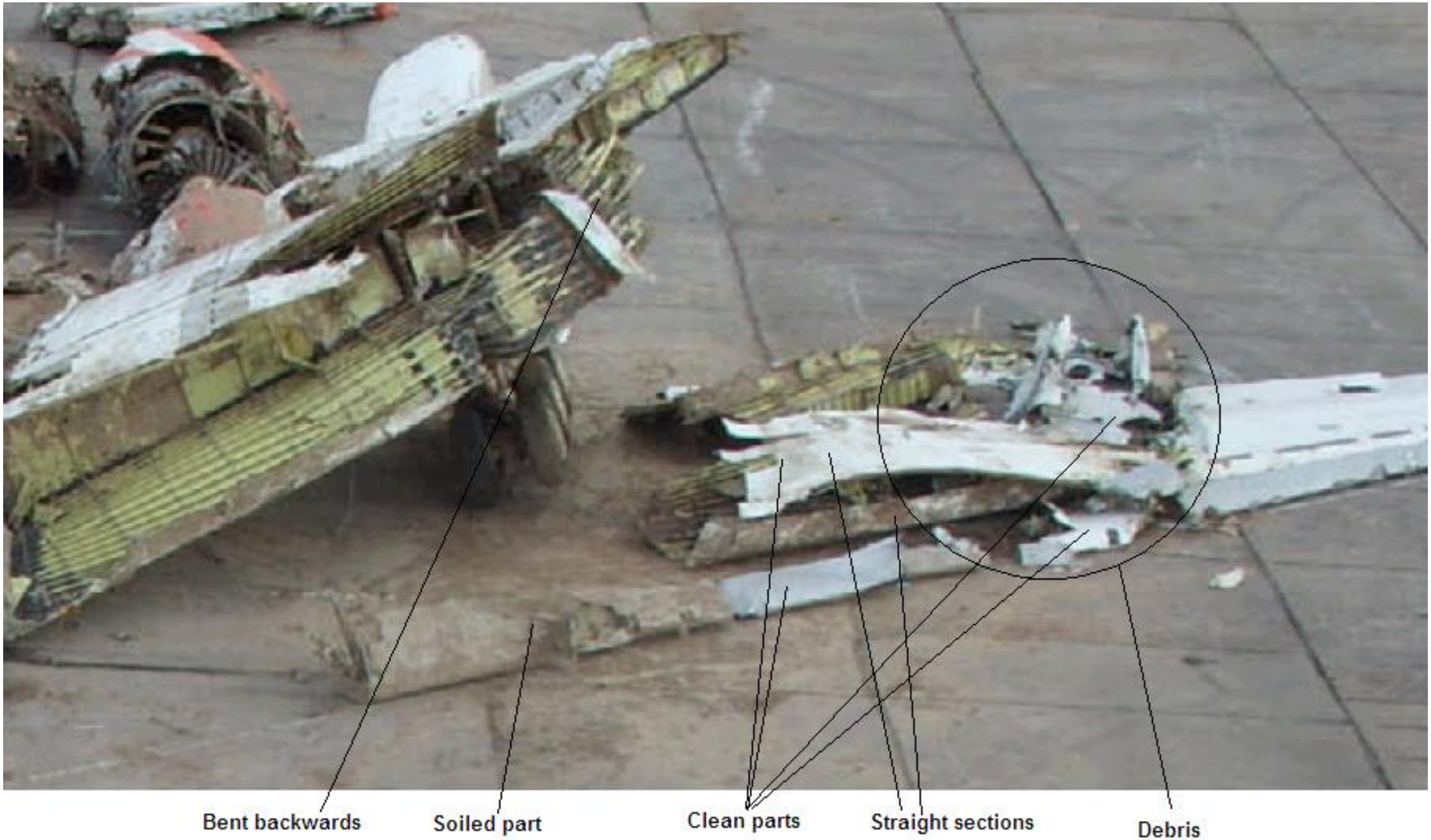


DISTANCE BETWEEN CONTACT POINTS FOR CASE I (WING TIP LOSS ONLY)



DISTANCE BETWEEN CONTACT POINTS FOR CASE II (SHORT WING)

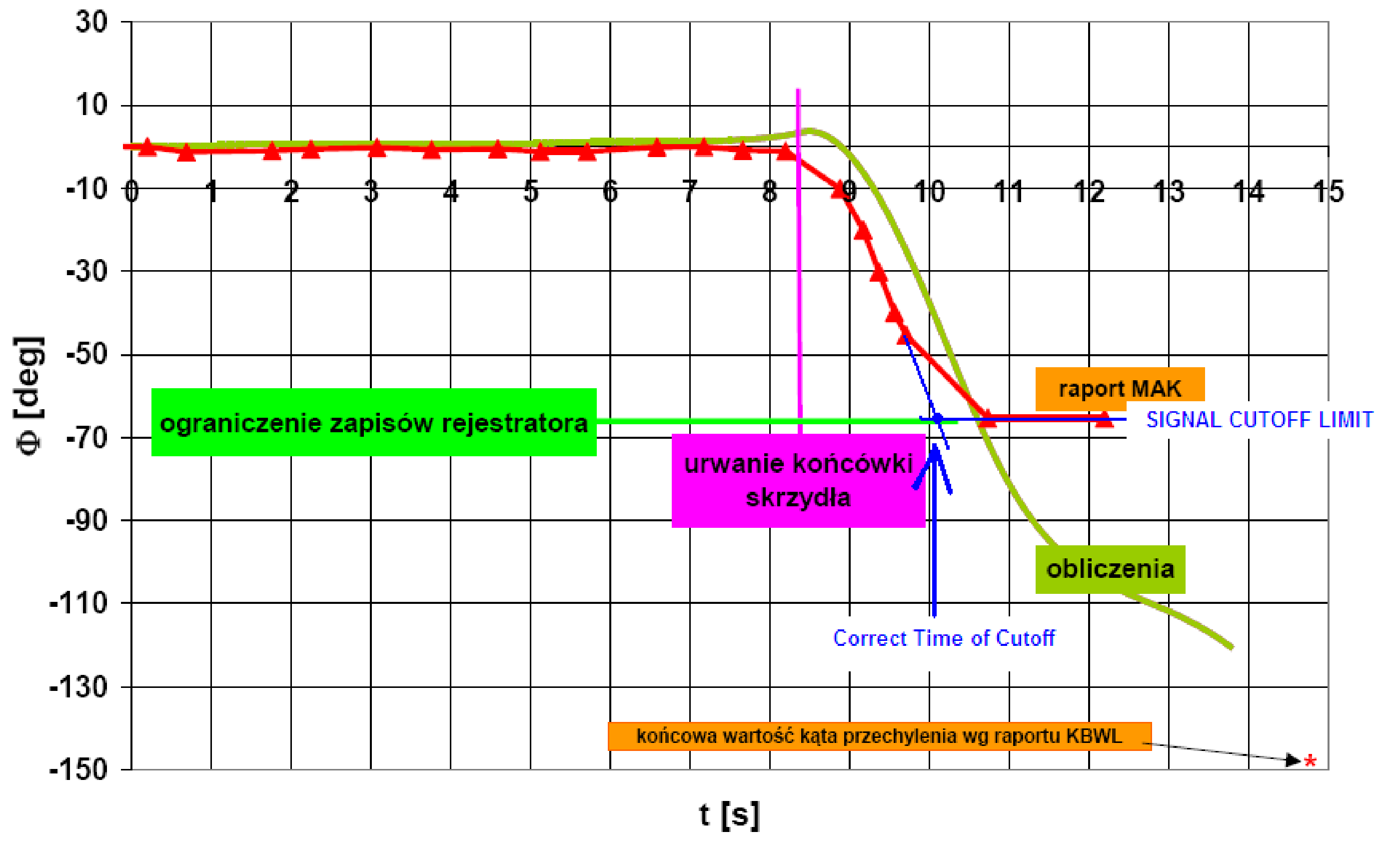




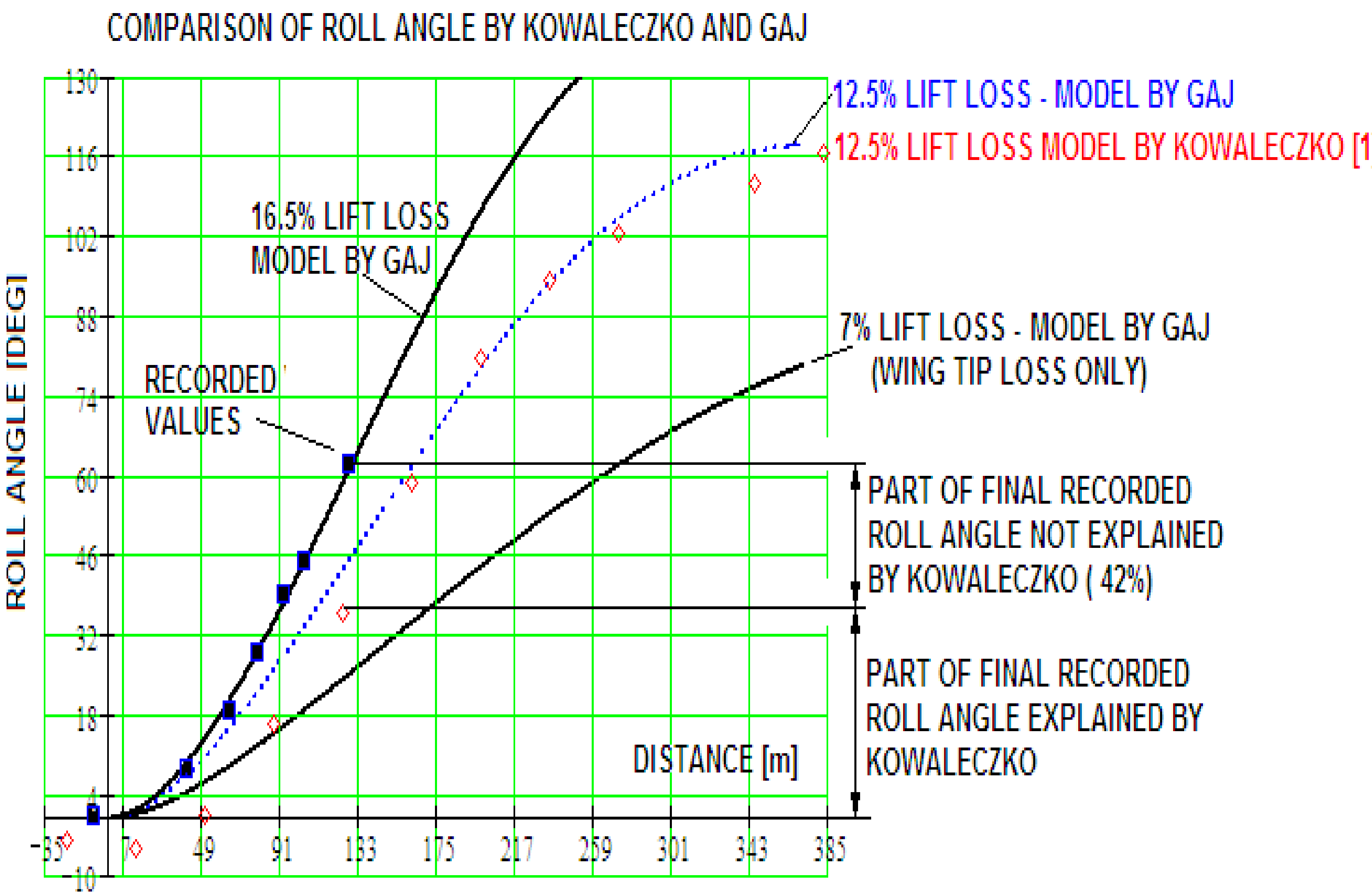
Bent backwards
Soiled part
Clean parts
Straight sections
Debris

Comparison to the Work of Others

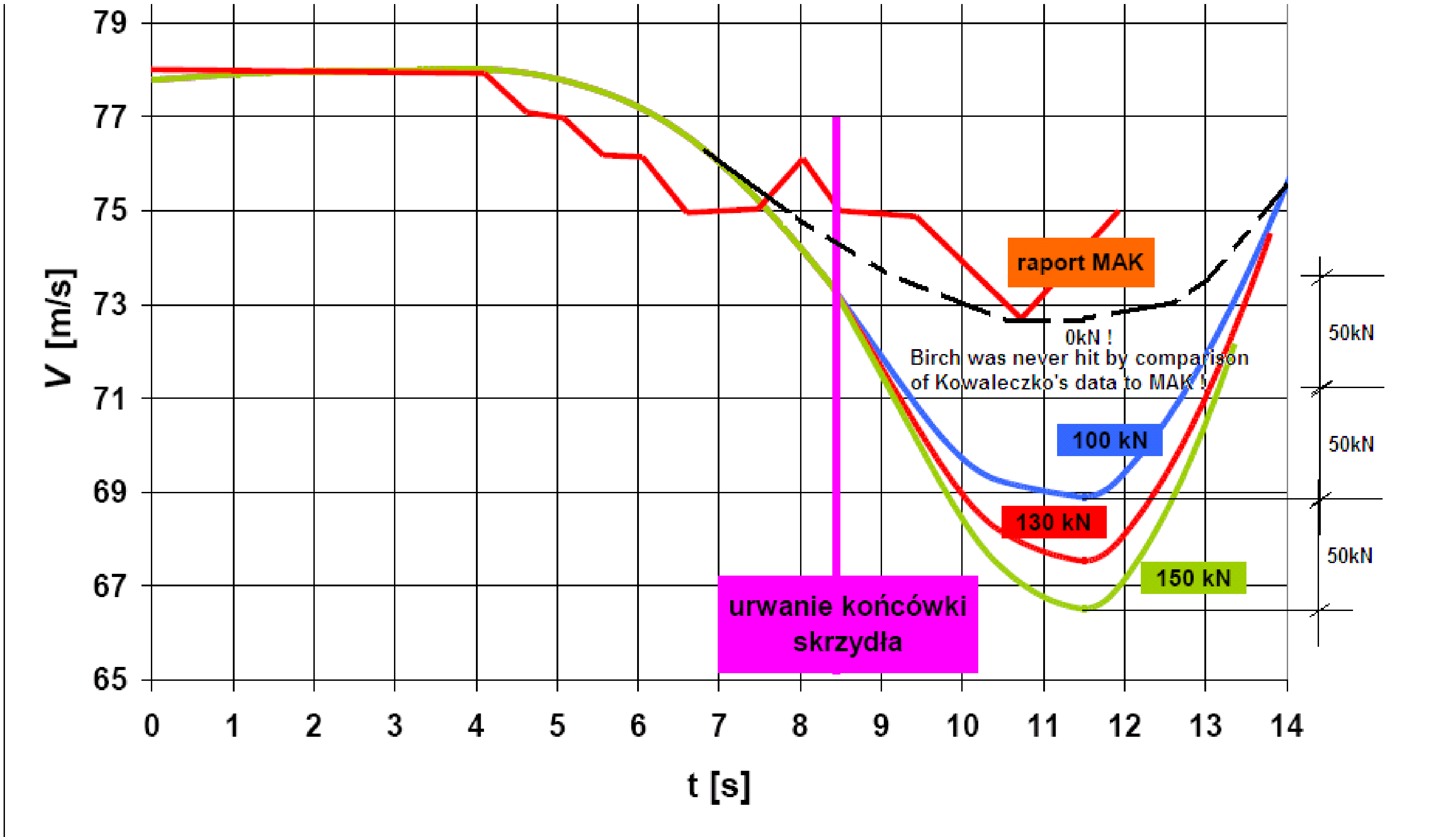
REKONSTRUKCJA OSTATNIEJ FAZY LOTU SAMOLOTU TU-154M ,
prof. dr hab. inż. **Grzegorz Kowaleczko , Military akademi, Poland (31.12.2013)**



Rys.IV.2.4. Kąt przechylenia samolotu

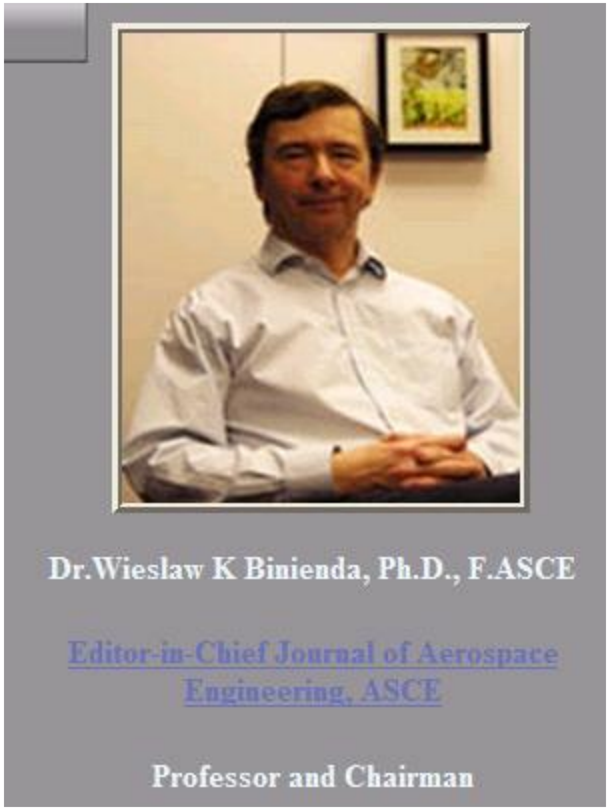


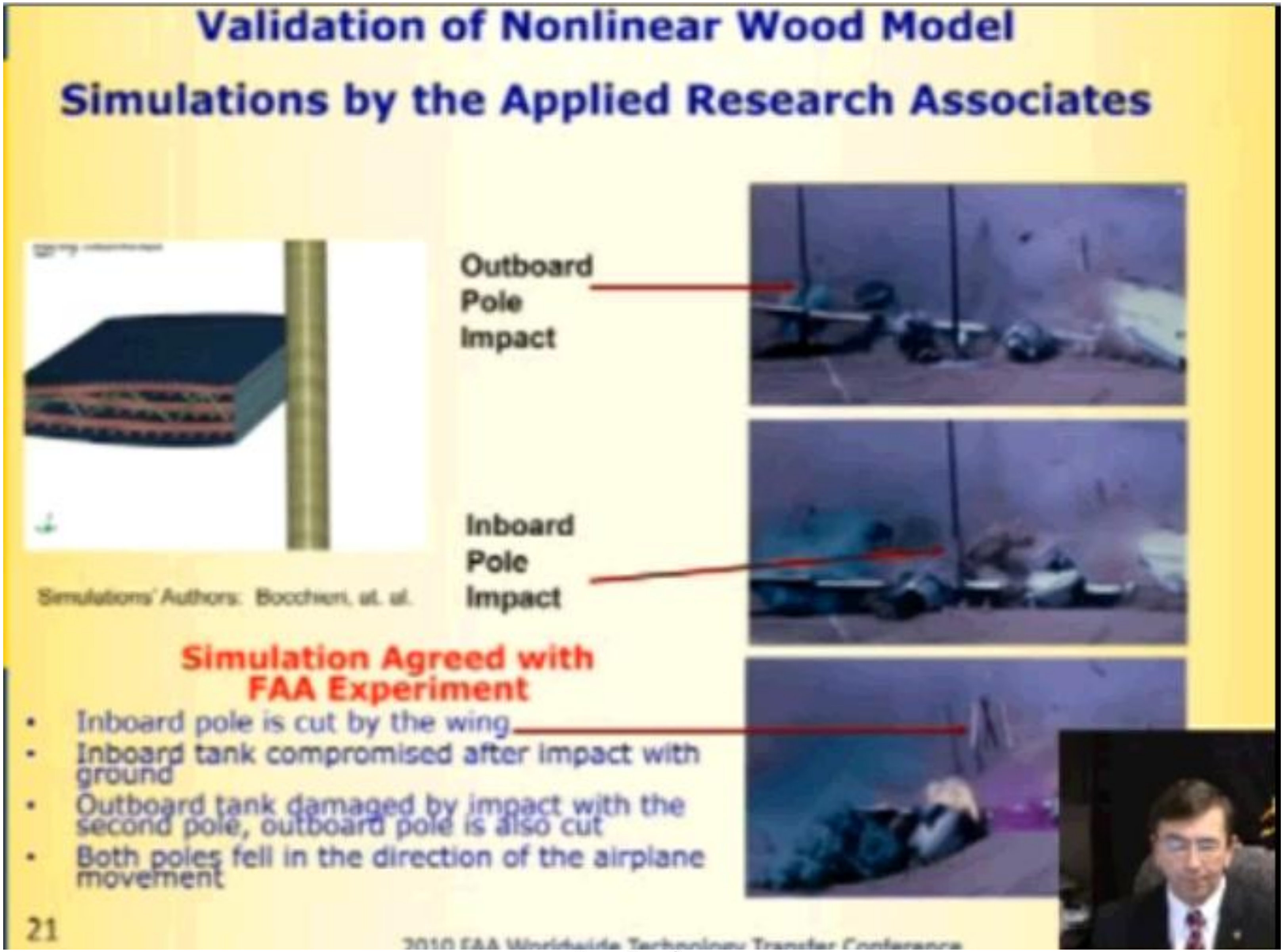
COMPARISON OF ROLL ANGLE BY KOWALECZKO AND GAJ
ROLL ANGLE [DEG]
12.5% LIFT LOSS - MODEL BY GAJ
12.5% LIFT LOSS MODEL BY KOWALECZKO [1]
16.5% LIFT LOSS
MODEL BY GAJ
7% LIFT LOSS - MODEL BY GAJ
(WING TIP LOSS ONLY)
RECORDED
VALUES
PART OF FINAL RECORDED
ROLL ANGLE NOT EXPLAINED
BY KOWALECZKO (42%)
PART OF FINAL RECORDED
ROLL ANGLE EXPLAINED BY
KOWALECZKO
DISTANCE [m]
130
116
102
88
74
60
46
32
18
4
-10
-35
7
49
91
133
175
217
259
301
343
385



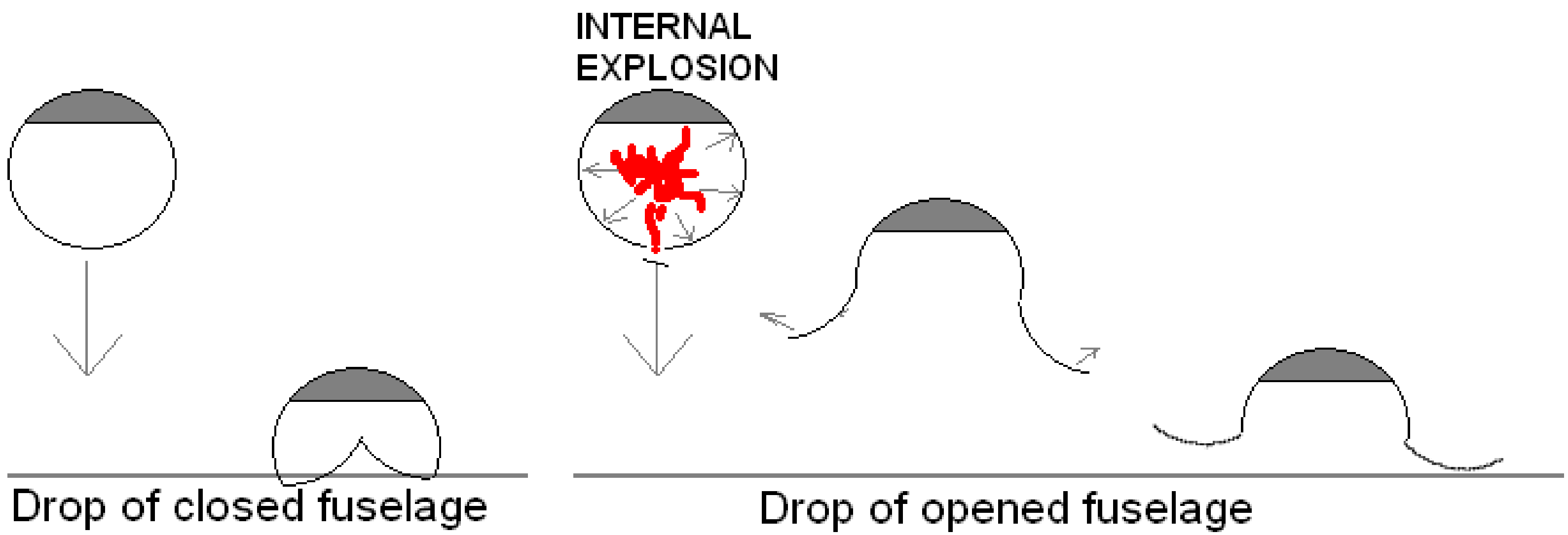
Rys.12.1. Prędkość lotu

Professor at the University of Akron Wieslaw Binienda

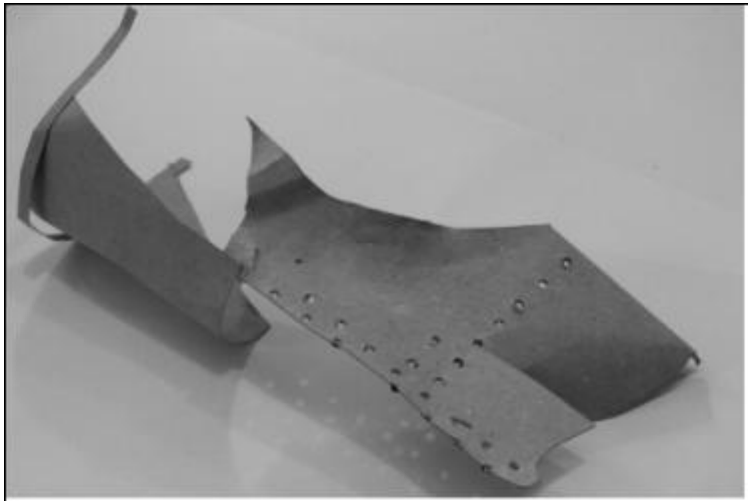


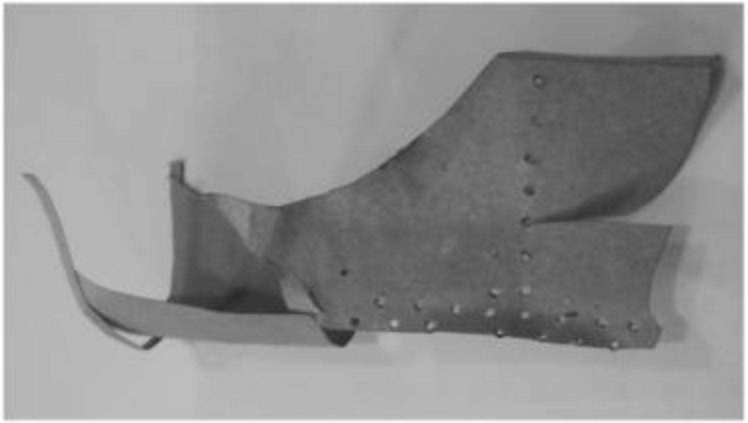


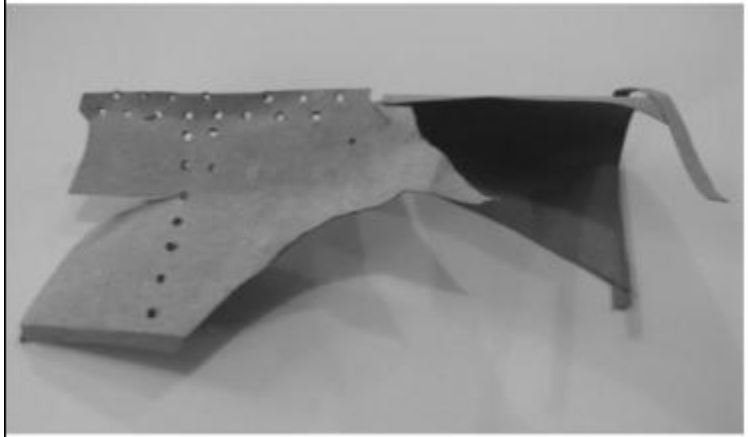
Validation of Nonlinear Wood Model
Simulations by the Applied Research Associates
Outboard Pole Impact
Inboard Pole Impact
Simulations' Authors: Bocchieri, et. al.
Simulation Agreed with FAA Experiment
• Inboard pole is cut by the wing
• Inboard tank compromised after impact with ground
• Outboard tank damaged by impact with the second pole, outboard pole is also cut
• Both poles fell in the direction of the airplane movement
21
2010 FAA Worldwide Technology Transfer Conference

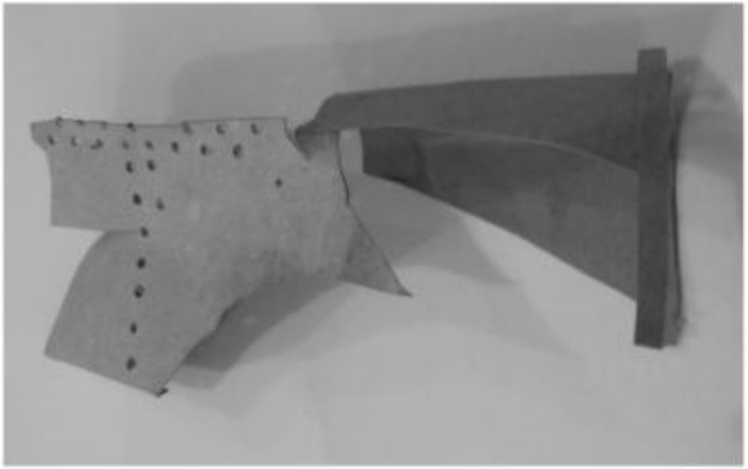


A section of the fuselage of P101 was found in the state shown to the right. Simulations show this only occurs in case the fuselage has been opened prior to final ground contact.









Summary

- By the scientific work of Mr. W. Bienienda and G. Szuladzinski it is clear, that the claimed birch tree could not cut the wing of the Tu-154M. Actually the birch tree needed to have four times the strength, if it were to cut the wing.
- By the scientific work of Mr. W. Bienienda it is clear, that a crash of this kind should generate a 1-2m deep crater. Only small grooves are seen.
- By the scientific work of Mr. W. Bienienda and others it is shown, that the way the positioning of the plane sections correspond to those, if the fuselage had experienced an internal pressure on the final distance.
- Had the tree been cut by the wing, it would lay parallel to the direction of the flight. It lay perpendicular.
- By the work of Mr. C. Cieszewski and other scientists the claimed birch can be seen cut already on the 5^{th} of April prior to the flight.
- Inner wing parts are located more than 100m from the site of crash.
- The plane lost power on all separate generators 70m prior to the site of crash in 15m height.
- Ground traces fit the hypothesis of additional wing loss and contradict the official explanation.
- The vertical acceleration sensor shows two significant dips, one in the vicinity of the claimed birch tree and another 47m closer to the site of crash.
- Major fluctuations between the left and right rudder actuators are present after the second significant dip in the vertical acceleration sensor indicating something hit the left rudder surface.
- The left horisontal tail surface disengaged from the airplane more than 70m prior to the site of crash and was moved on the night between the 11^{th} of april and 12^{th} of april 35m closer to the site of crash according to satellite photos.
- The final recorded roll angle of the P101 cannot be explained by my simulations NOR by Proffessor Kowaleczko!

CONCLUSION

- The final recorded roll angle cannot be explained by theory.
- Two very different models of simulation give nearly the same results, showing a wing loss of approximately the double area is required.
- **The plane never hit the Birch tree as stated.**

This is agreement with many other investigations and reports in a wide range of fields.

Vaclav Havel: " If every day a man takes orders in silence from an incompetent superior, if every day he solemnly performs ritual acts which he privately finds ridiculous, if he unhesitatingly gives answers to questionnaires which are contrary to his real opinions and is prepared to deny his own self in public, if he sees no difficulty in feigning sympathy or even affection where, in fact, he feels only indifference or aversion, it still does not mean that he has entirely lost the use of one of the basic human senses, namely, the sense of humiliation.

LINKS

- http://youtu.be/4rn4YXinczw
- http://aviation-safety.net/database/record.php?id=20100907-0
- http://ecgf.uakron.edu/~civil/people/binienda/WKB_Nov25_2012.html