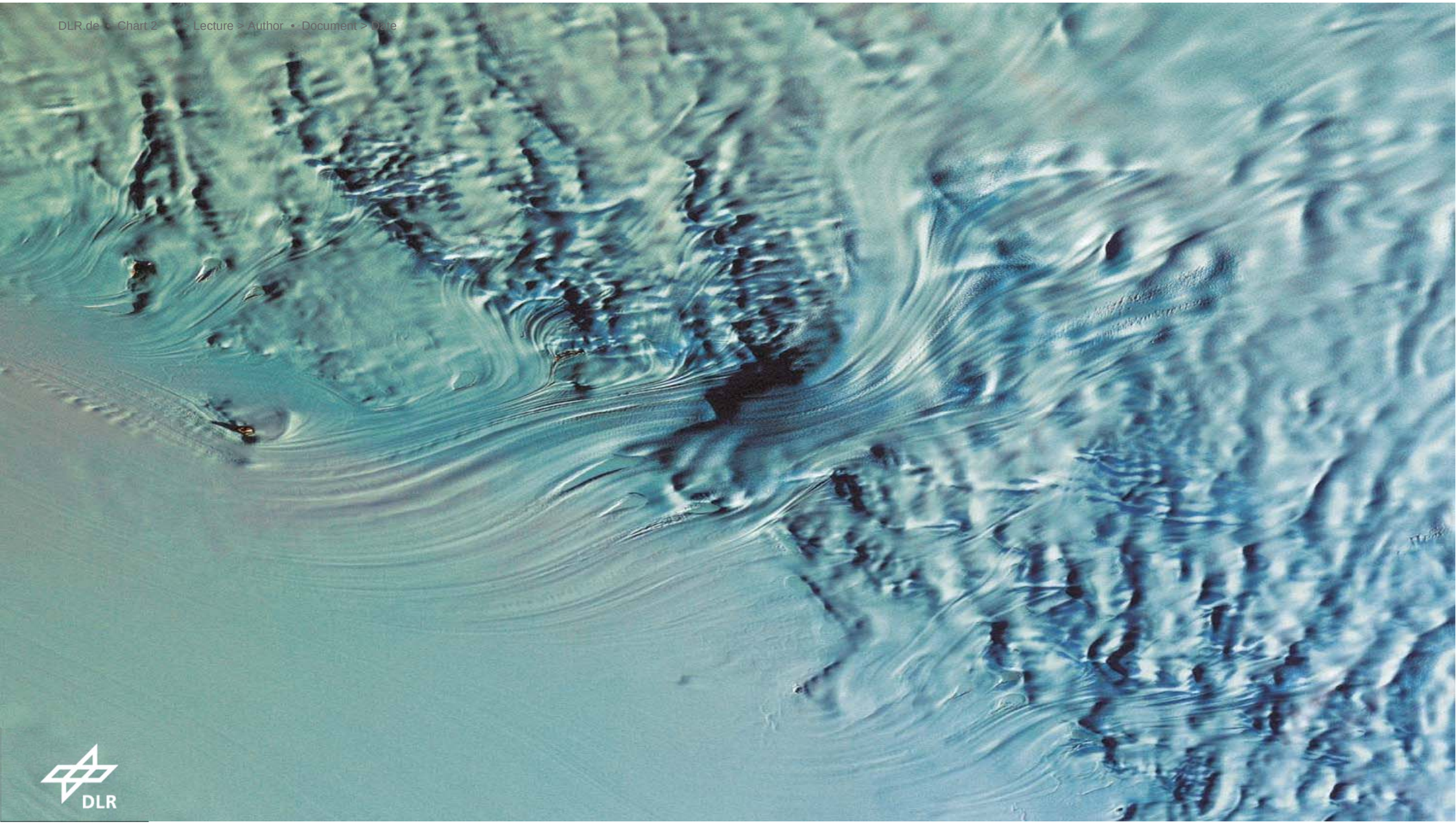
Human-In-The-Loop Echtzeitsimulation des SpaceLiner Passagierrettungskapselkonzepts

Frank Morlang

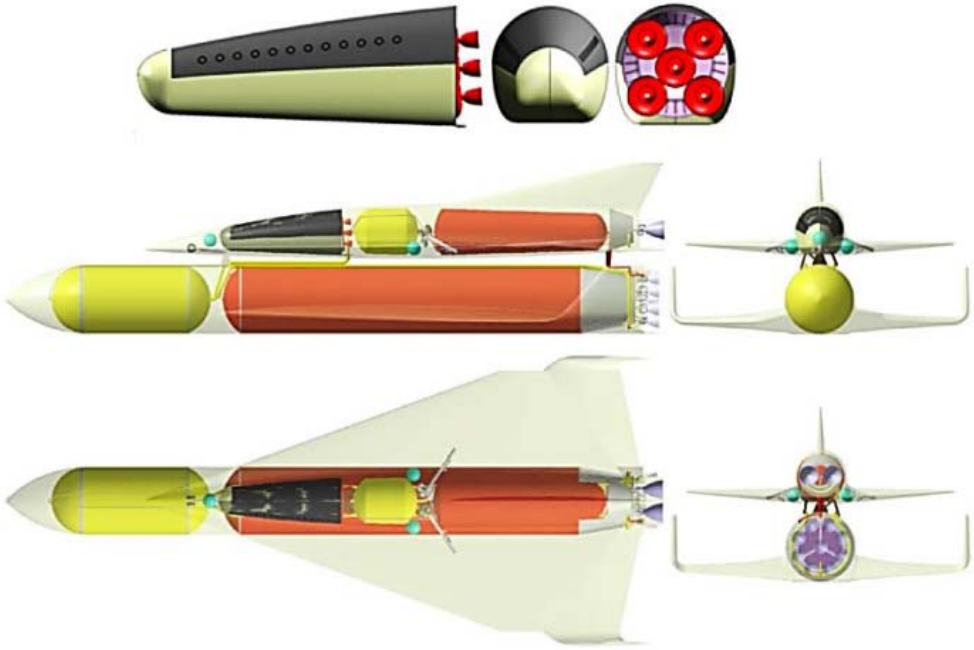


DLR

Überlick

- SpaceLiner
- Rettungskapselkonzept HYPMOCES
- Simulationsansatz
- Umsetzung
- Erste Ergebnisse
- Ausblick

SpaceLiner



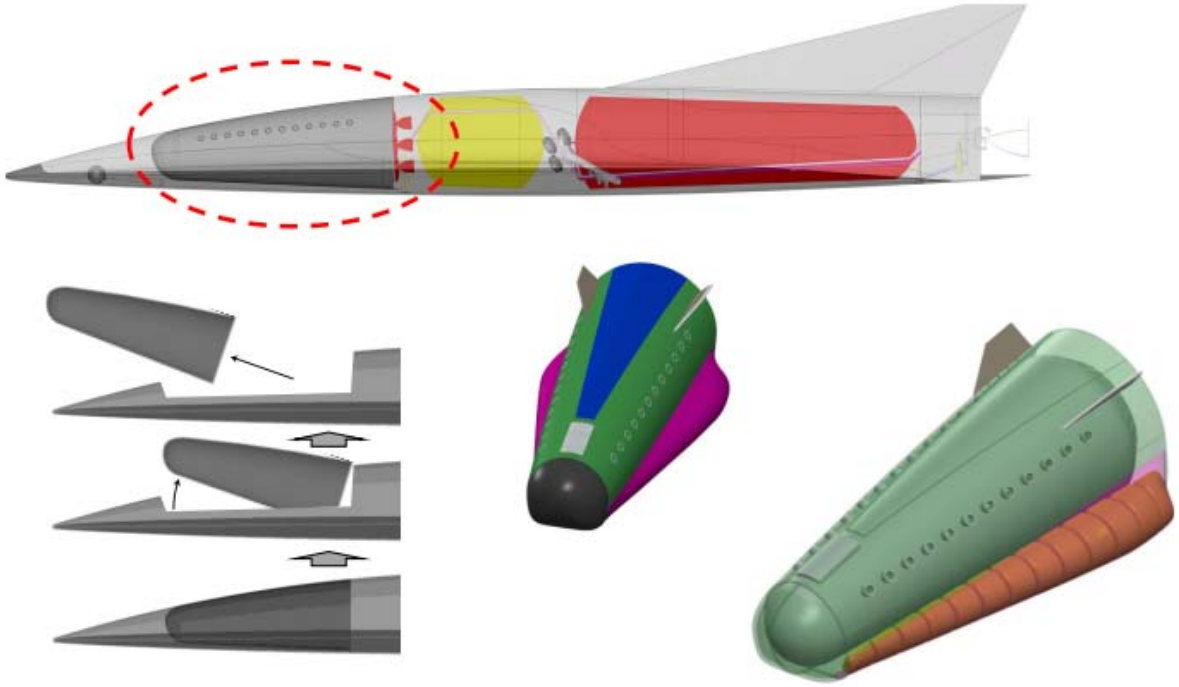
Source:

Sippel, M., Bussler, L., Kopp, A., Krummen, S., Valluchi, C., Wilken, J., Prévereaud, Y., Vérant, J.-L., Laroche, E., Sourgen, F., Bonetti, D. 2017. Adanced Simulations of Reusable Hypersonic Rocket-Powered Stages. In: *21st AIAA International Space Planes and Hypersonic Systems and Technologies Conference*. AIAA 2017-2170.

Rettungskapselkonzept HYPMOCES

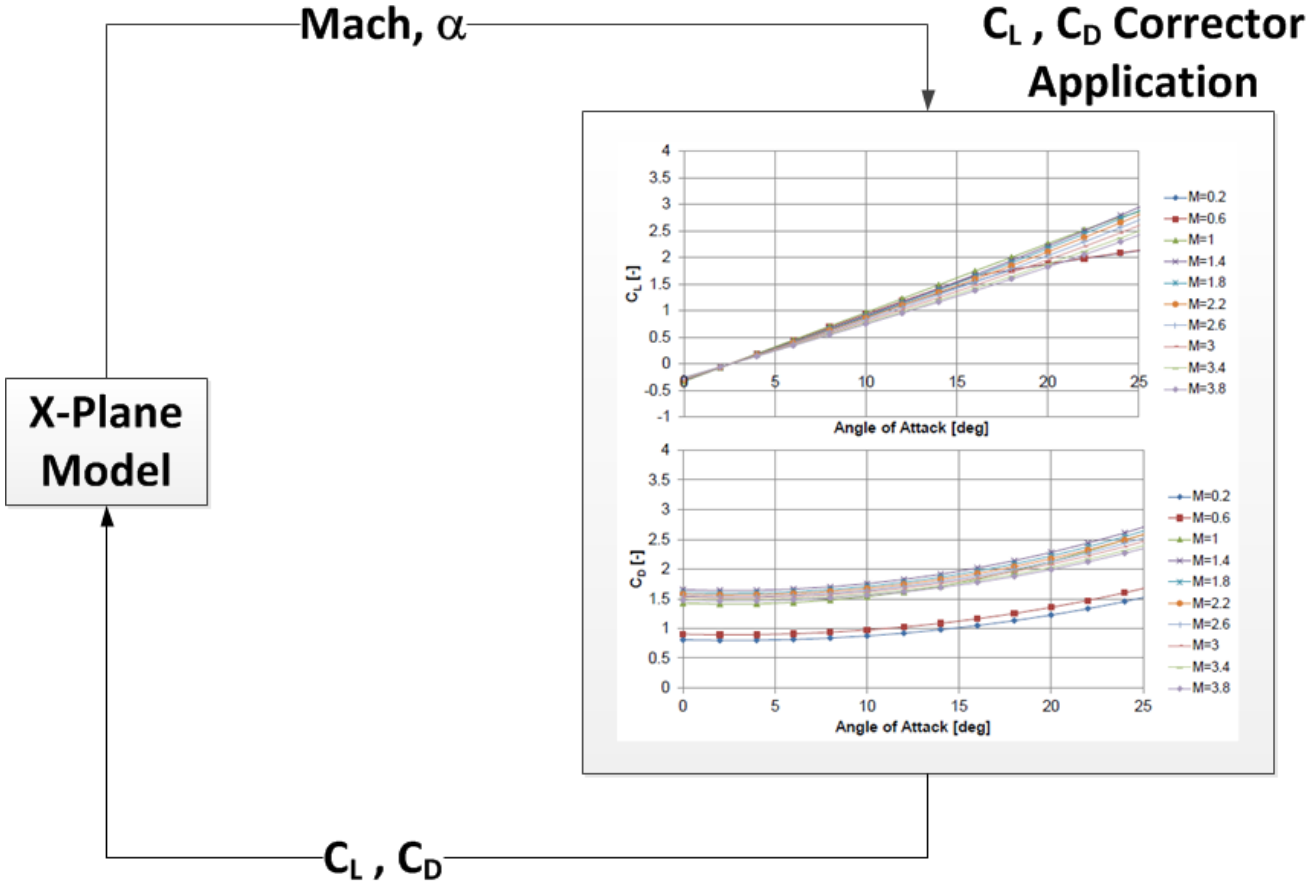
Hypersonic **Mo**rphing for a **C**abin **E**scape **S**ystem

Rettungskapselkonzept HYPMOCES



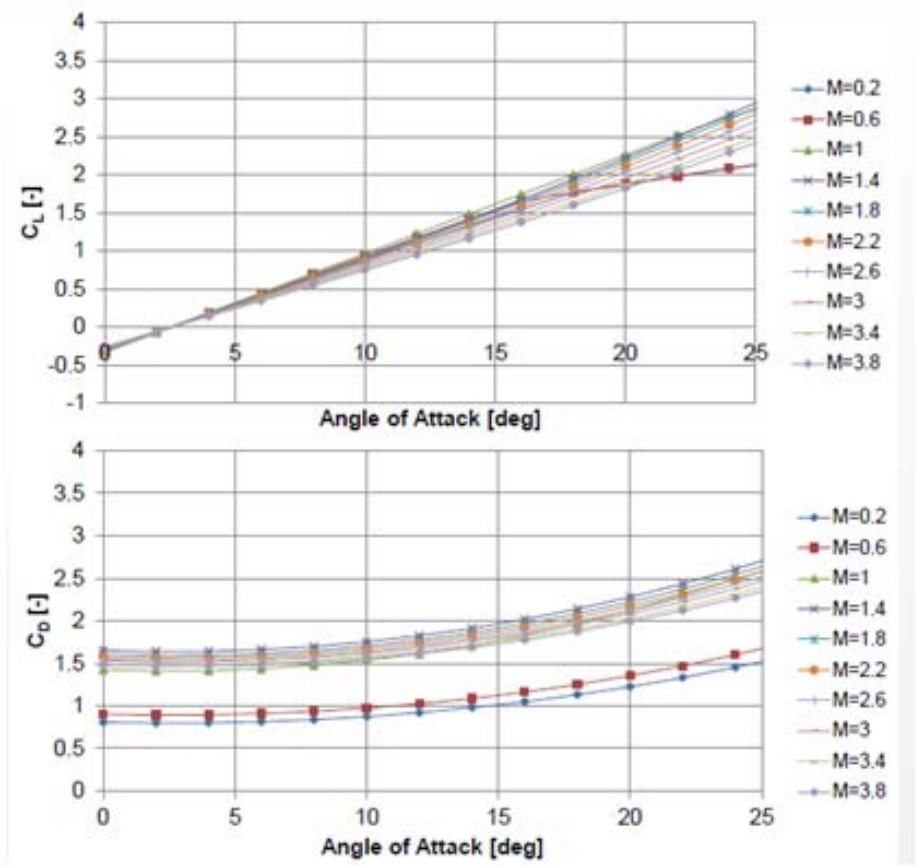
Source: D. Bonetti, R.H. Ramos, C. Parigini, J.F. Mallol, M. Kerr, P. Rosa, T. Schwanekamp, M. Sippel, M. Johhannson, F. Fossati, G. Gambacciani, F. Sourgen, E. Laroche, "Hyperonic Morphing for a Cabin Escape System", HYPMOCES, ATD8, ELECNOR DEIMOS, Lison, March 2015

Simulationsansatz 1

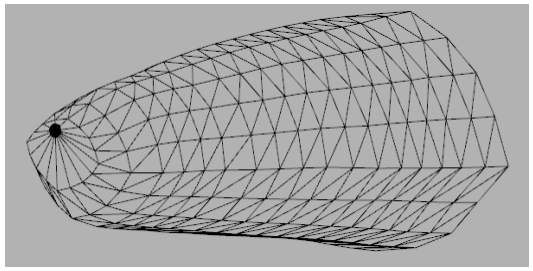


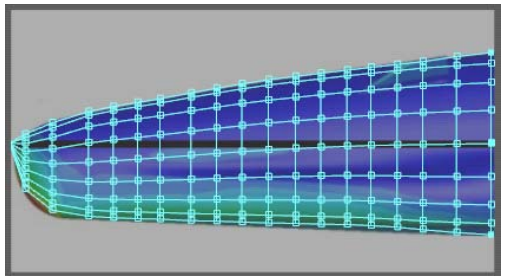
Simulationsansatz 2

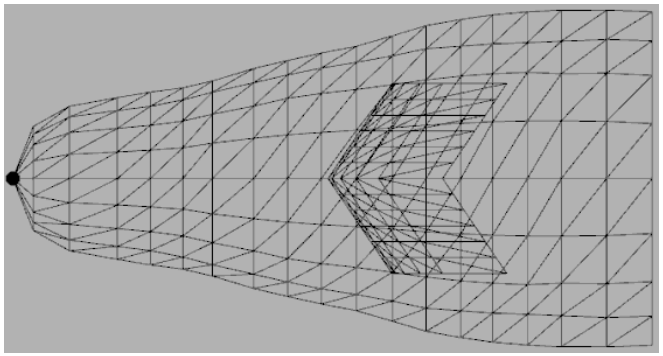
X-Plane Model

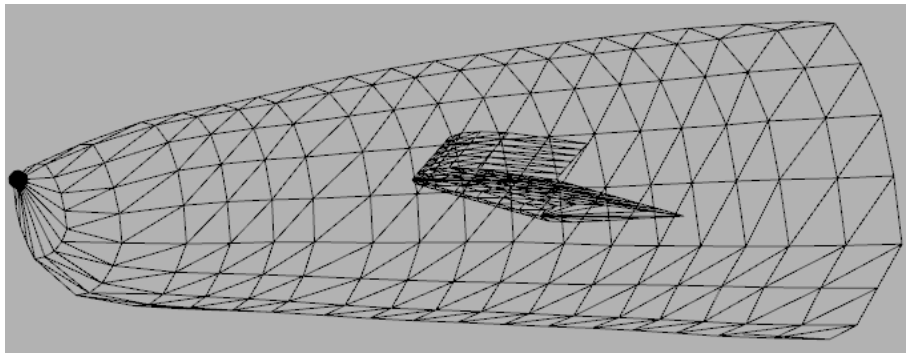


Umsetzung (Simulationsansatz 2)







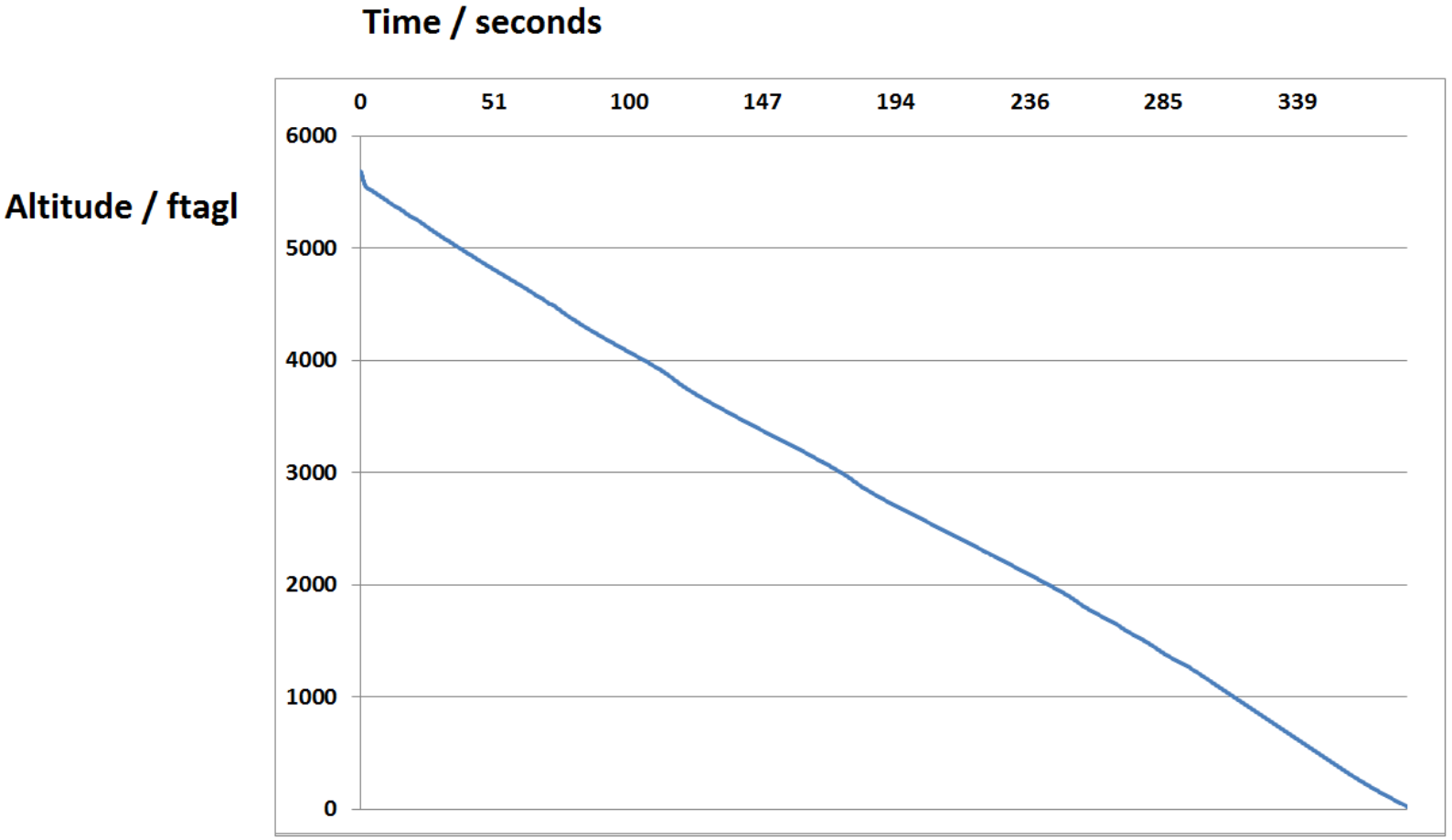


Erste Ergebnisse (Fallschirmauslösung)

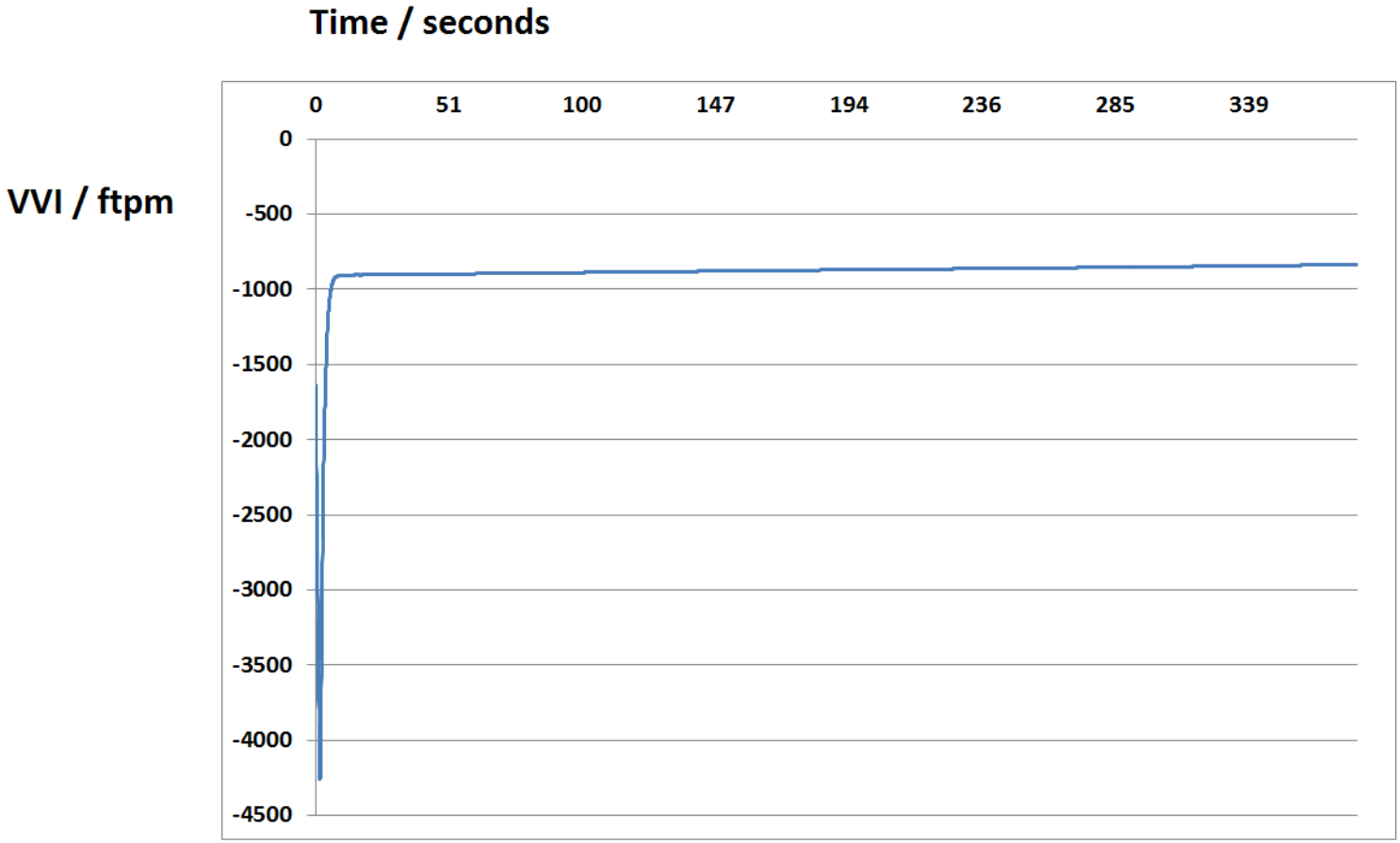
Erste Ergebnisse (Fallschirmauslösung)

3 Fallschirme je 5000 m^2 Fläche

Höhe über Zeit



Sinkgeschwindigkeit über Zeit



Ausblick

- Tuning der internen Flügel
- Realisation der Klappen