Fig. 5: Flight envelope

- Maximum lift borders are determined by onset of massive separation causing total lift loss
- High lift configuration flow is physically very complex due to high loading
- Region of highest accuracy and robustness
- Region of most experience
- The colour gradient is intended to show level of confidence in CFD flow solutions
- Beyond buffet boundary flow tends to become more and more separated from the aircraft surface
- Unsteady effects start to become dominant
- Transonic flow effects (shocks) get stronger with increasing Mach number and load
- Interaction of physical effects (shock flow, boundary layer flow) start to dominate
- Low g flow tends to separate on the lower side of the aircraft
- Local low Mach number / low compressibility flow only weekly coupled to main flow