DANGEROUS SLIDING

When The Going Gets Tough, Only The Tough Get Going

The analog calculators are disappearing fast, as digital devices become more reliable and power efficient. But in extreme uses, when reliability comes first, they still be indispensables.

What you prefer to have, operating in these scenarios: a battery dependent device or a rugged slide rule?

Both temperature and relative humidity (RH) affect fire behavior. Hot and dry conditions aid fire spread by preheating and removing moisture from fuels, often leading to dangerous and unpredictable conditions.

The wildland fire environment is unforgiving for electronics. For these calculations the fire brigade standard kit uses a classic sling psychrometer and a slide rule.

Slide rules have more use in fire fighting: the energy company BP has recently made a set of two, to help reduce the dangers of tank fires.

The first estimate the application flow, and foam and water quantities required for a full surface tank fire, the second for a rim seal fire.

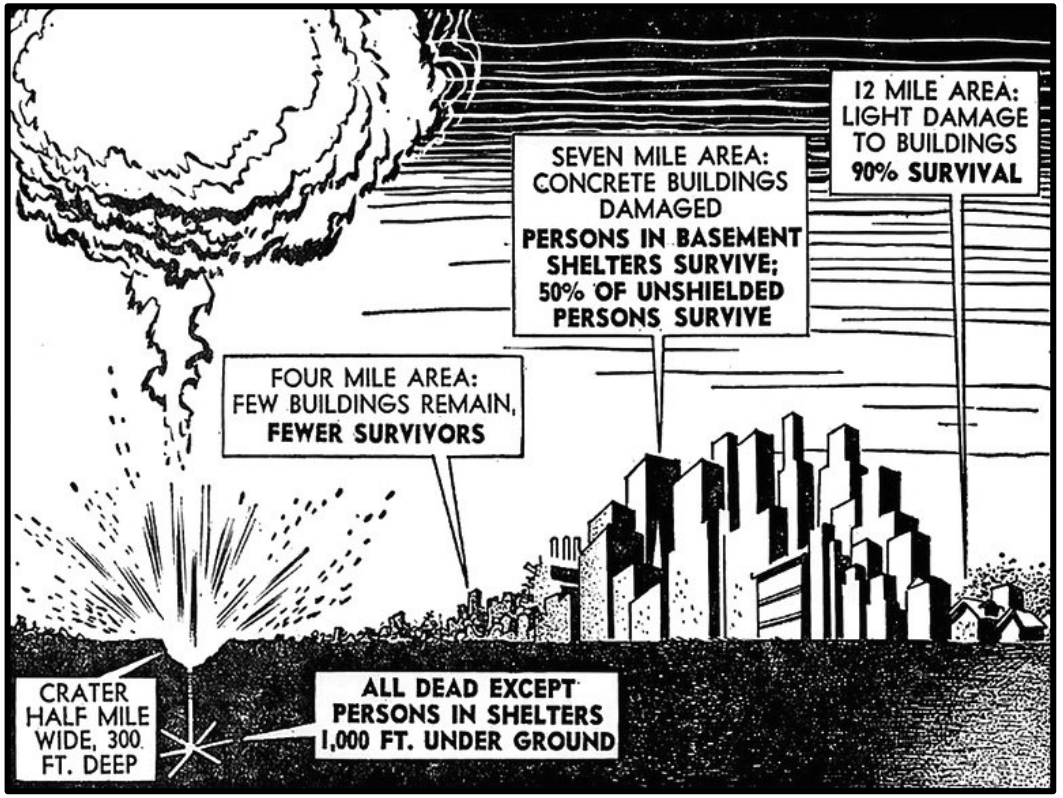
A bad tank fire can need up to 30,000 liters per minute and 250,000 liters of foam to extinguish the blaze.

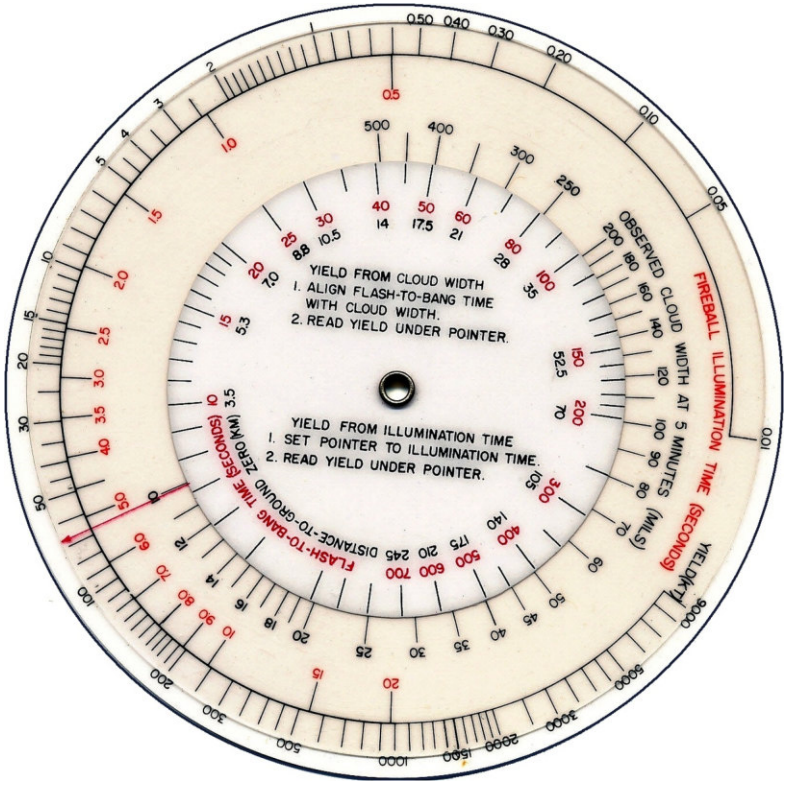
This is a true slide rule affair!

A rugged calculator is also needed in case of nuclear war. To those interested in an explosion exist many radiation analog computers, designed to make data easily available on various weapon effects. They have to be strong ... and radiations proof.

Electromagnetic pulse is a nuclear weapons effect that can have significant impact on electronic equipment through current surges. Computer chips are particularly vulnerable since they are designed to operate at very low power levels.

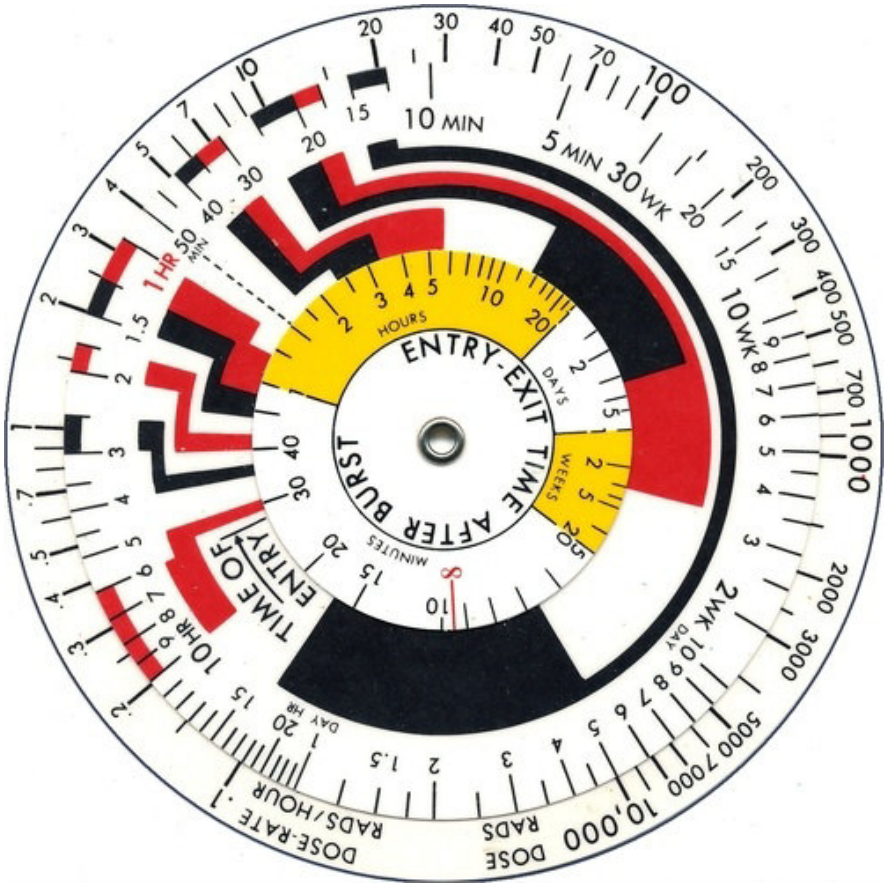
An electromagnetic-resistant slide rule is needed!



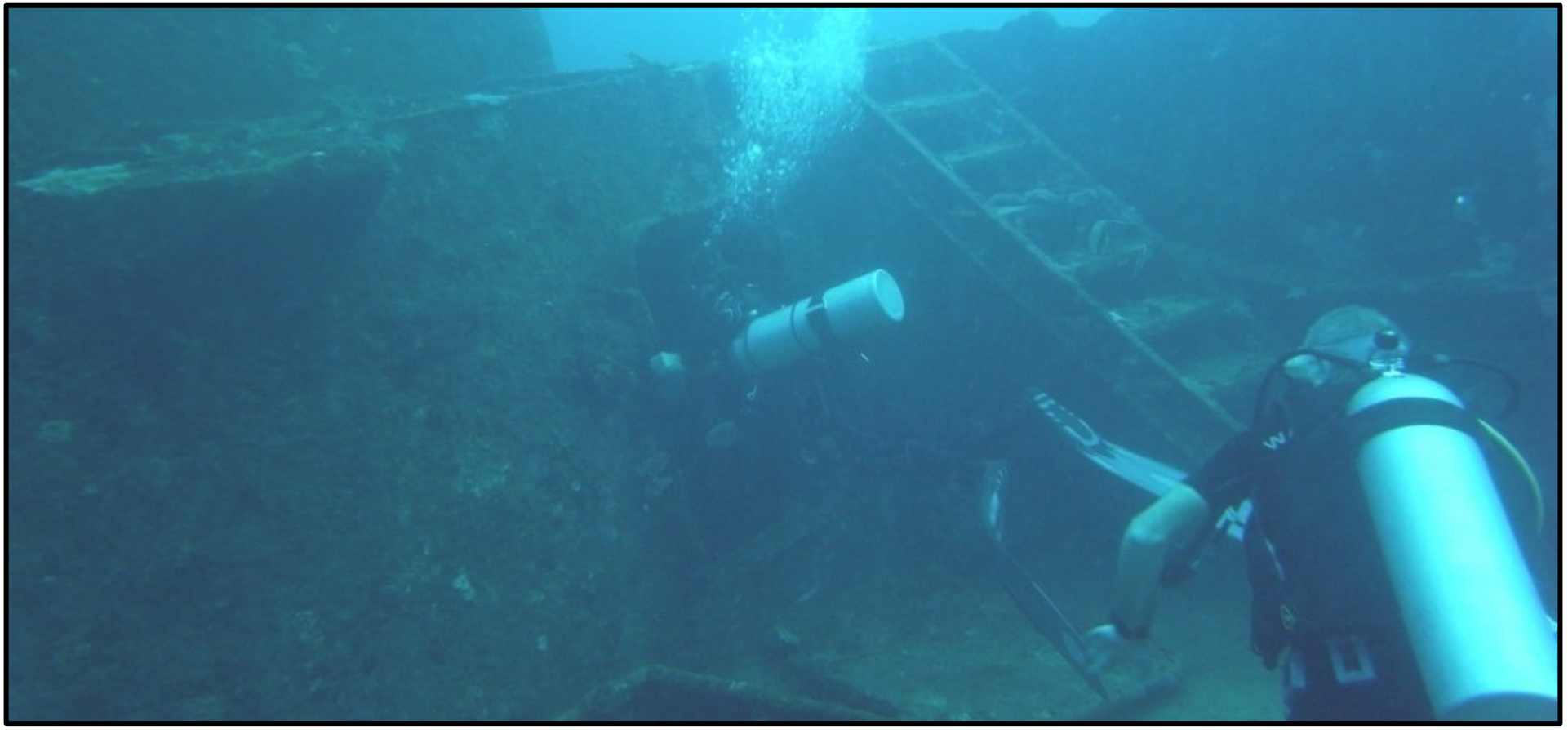


Those slide rules determine the radiation dose absorbed by the personnel after a nuclear explosion, the damage to buildings, the extent of the fire zones, the percent of the population killed, trapped and injured.

But the best solution is: stop with nuclear weapons!

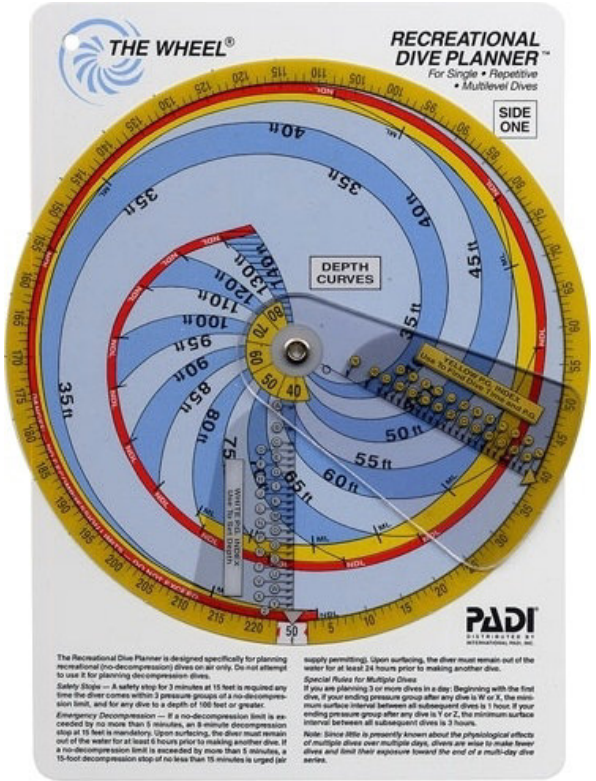


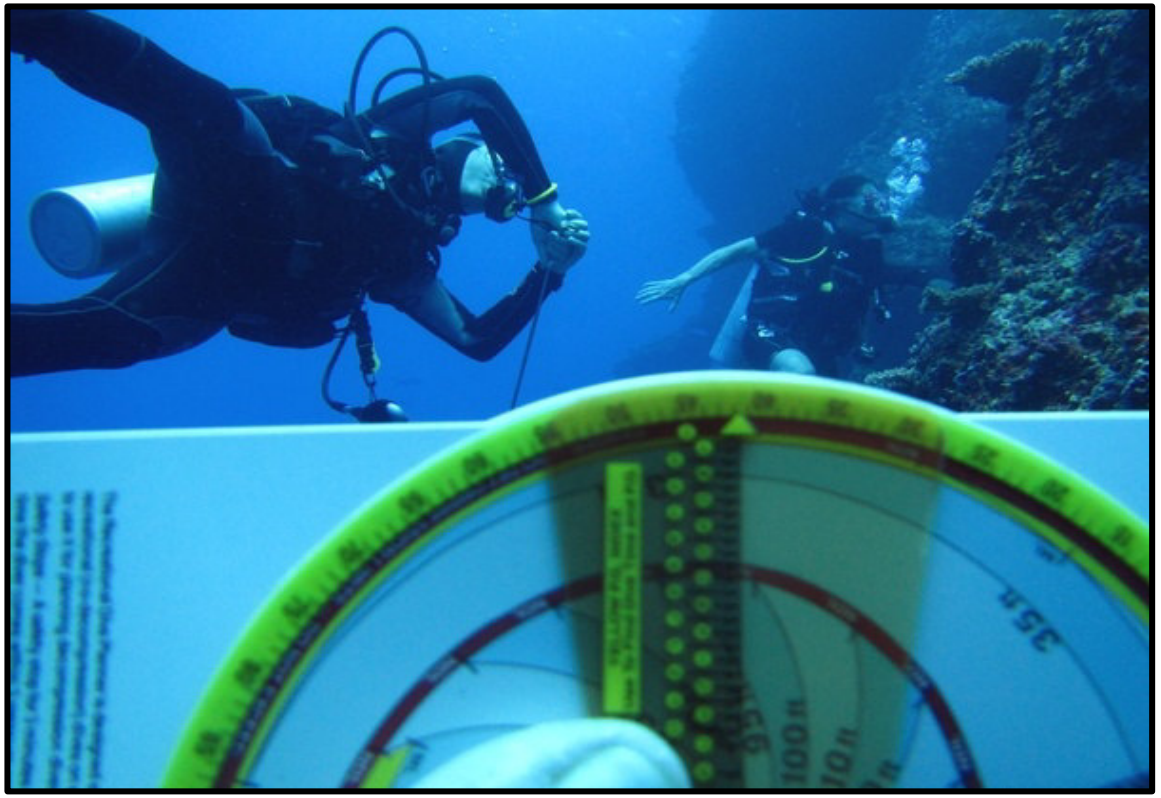
After fires, atomic bombs, etc. we need a recreational time. What's better than scuba diving? I love it and the new *Enriched Air Nitrox* techniques allow longer no-decompression limits, but these exciting dives are very difficult to plan: an underwater computer is required.



The compressed air goes in solution in our blood and comes out into bubbles on ascending from depth without care. A plan is needed for emerge with calculated stops, based on the length and depth of the dive.

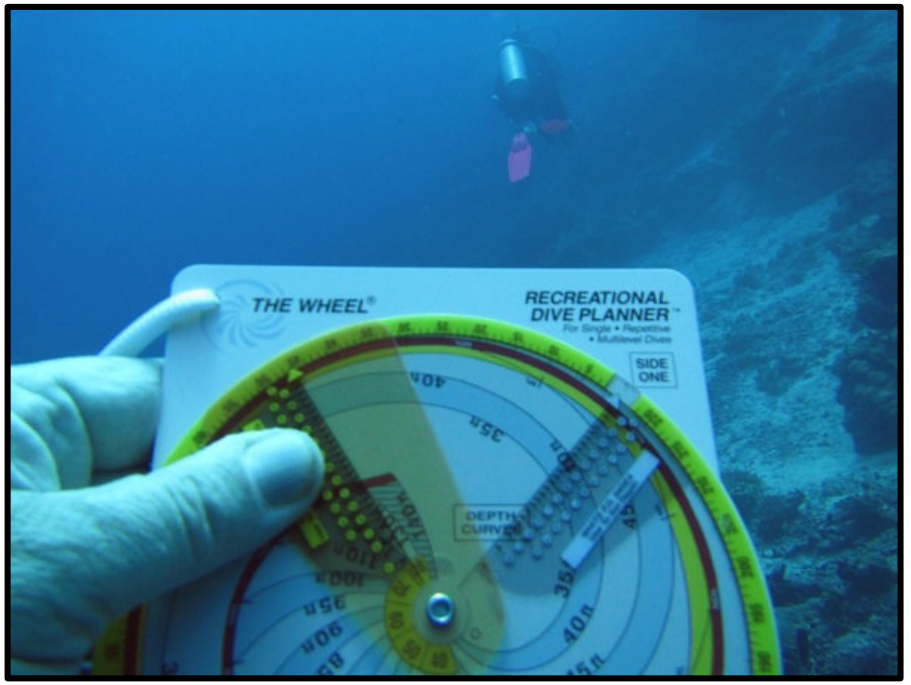
Sport divers use a computer, but as Rescue Diver I have to know the *Decompression Slide Rule Planner.*

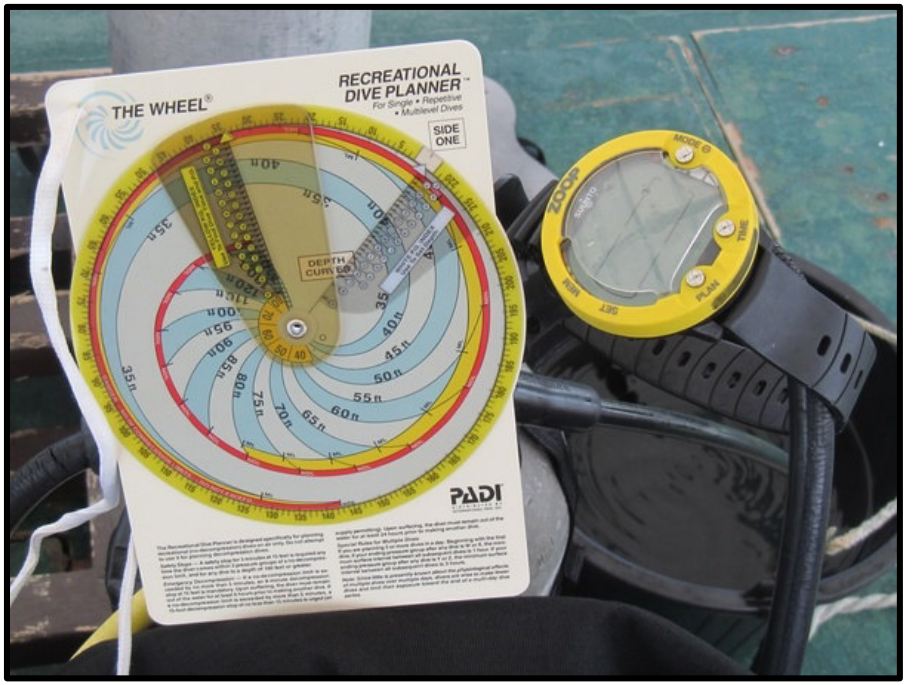




It is a waterproof device, but is recommended to use it before diving. *Plan your dive, dive your plan*: underwater the oxygen become toxic, procuring loss of attention. A wrong time to calculate plan changes with a slide rule.

YES, a modern computer is easier, but battery problems and hiccups are a regular occurrence: better have some backup calculators, one with battery and one without!



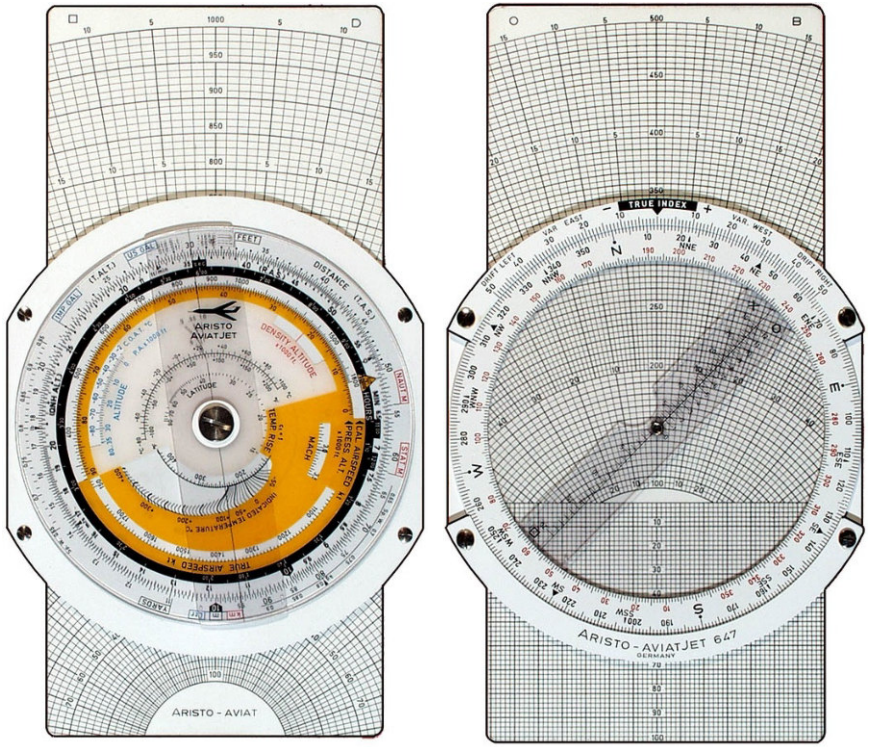


The analog calculators accompanied pilots from the beginning of flight. Accurate and easy to use, they would always be essential on board as a backup.

To go away from my island I have to cross 400 km of sea and must have a reliable calculator, independent from batteries, in case of electric failure. The slide rule is perfect: was used by Spock, will be good for me!

The aircraft slide rule E-6B was invented in the '30s and its use is so instinctive that is often preferred to modern devices: solves all the problems of flight, finds the angle of drift caused by the wind and convert the jungle of measures in which the pilot must unravel.

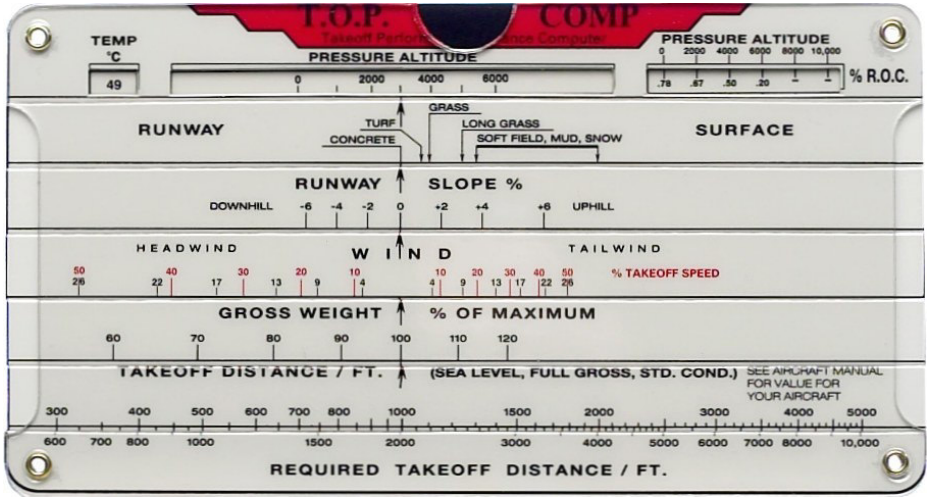
Useful, in professional version or just hand made in paper!



Both engine and aerodynamic performance of an aircraft decreases when low pressure area, higher temperature and/or high humidity lower the density of the air.

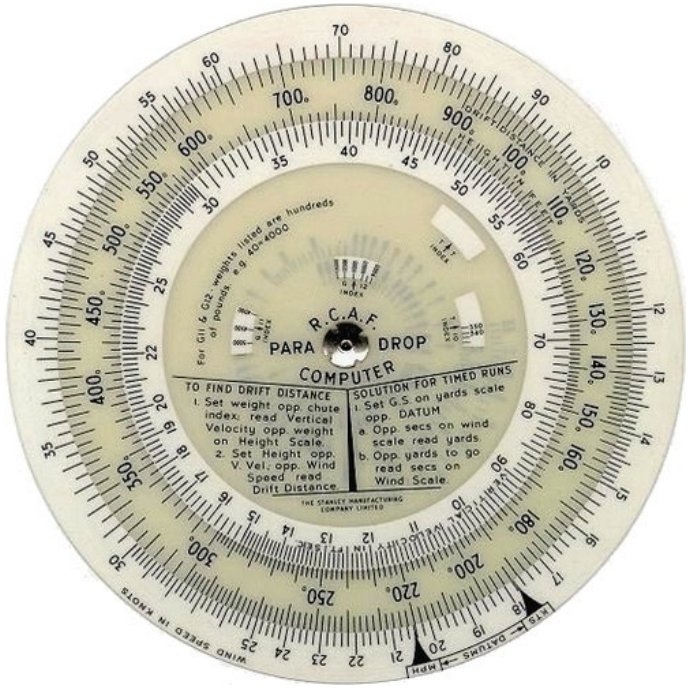
We need to check before if engine power and tarmac length are sufficient for a safe take off.

Due of their simplicity the density altitude slide rules are the best solution for all small aircraft.



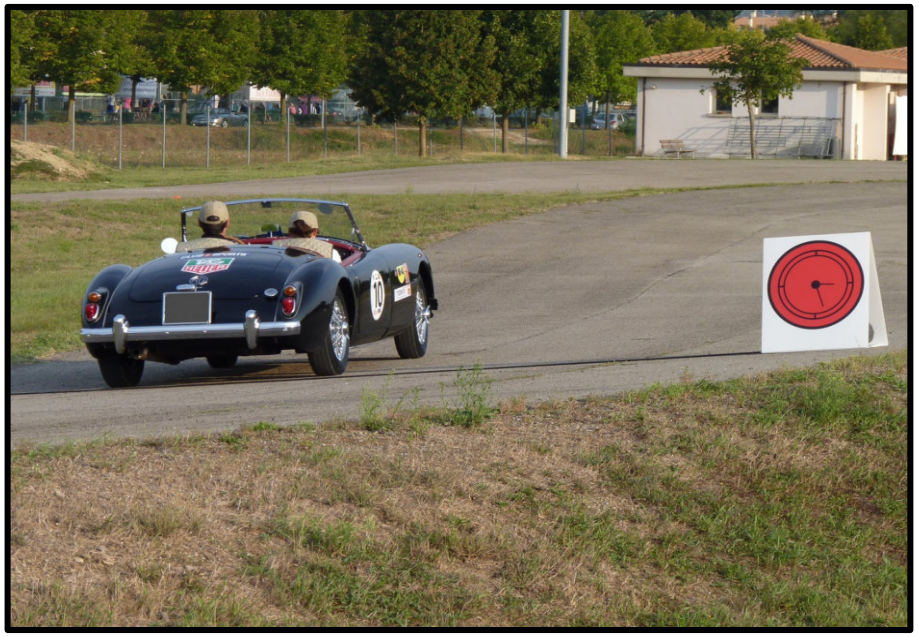
When I do not pilot I like to jump, but where I will land?

This circular slide rule calculates the *Computed Air Release Point* for a parachute drop, considering a *high speed free fall* ballistic stage, and a *low speed high drag* deployed stage. It is a big and proof item, to be used with gloves in a cold and non pressurized aircraft.



I just jumped: from 4,500 meters the drift can be very important

A *Classic Rally* is a competition reserved to old cars that pits competitors against their own driving and the clock: the driver nominates a lap time and endeavors to maintain that time over a number of flying laps of the race circuit. Each tenth of a second away from the nominated time scores penalty points.



Up on left the start point of a lap: precise calculating is essential

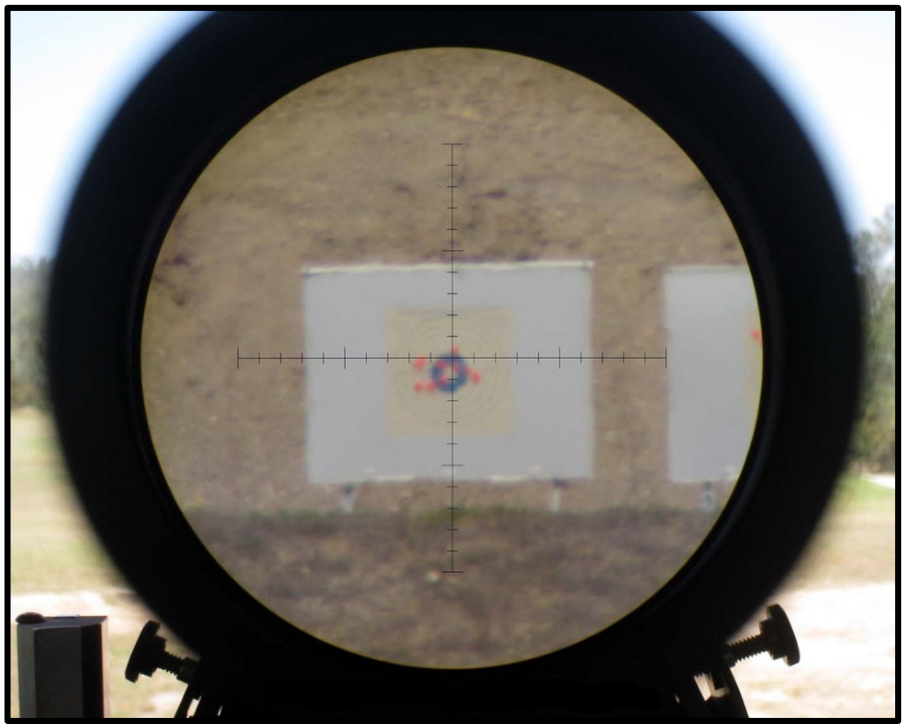
The navigator manages odometer, speedometer and stopwatch, but there is a lot of math to perform. He needs a calculator to found: time needed to travel each lap; speedometer speed required to travel at the desired actual speed; corrected elapsed time for the distance traveled; speed that is needed to make up for lost time.

To win a race you need an analog instrument and a good navigator

Long range shooting is for me an interesting discipline: must have good skill fundamentals and in addition be able to make a variety of ballistics calculation. Not easy!

Indeed, to hit a target 3 km away must perform several calculations: the bullet undergoes many external influences and one millimeter of error will deviate it of meters.

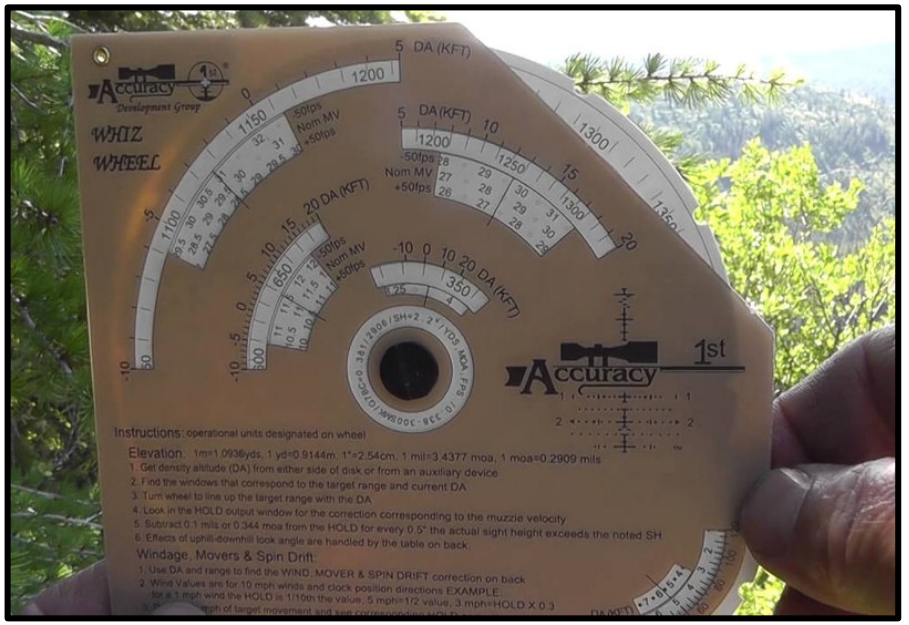
On the field our calculator has to be rugged and reliable: for this *mission impossible* we need a slide rule.



At a distance of 1,000 meters becomes harder to see and hit the target

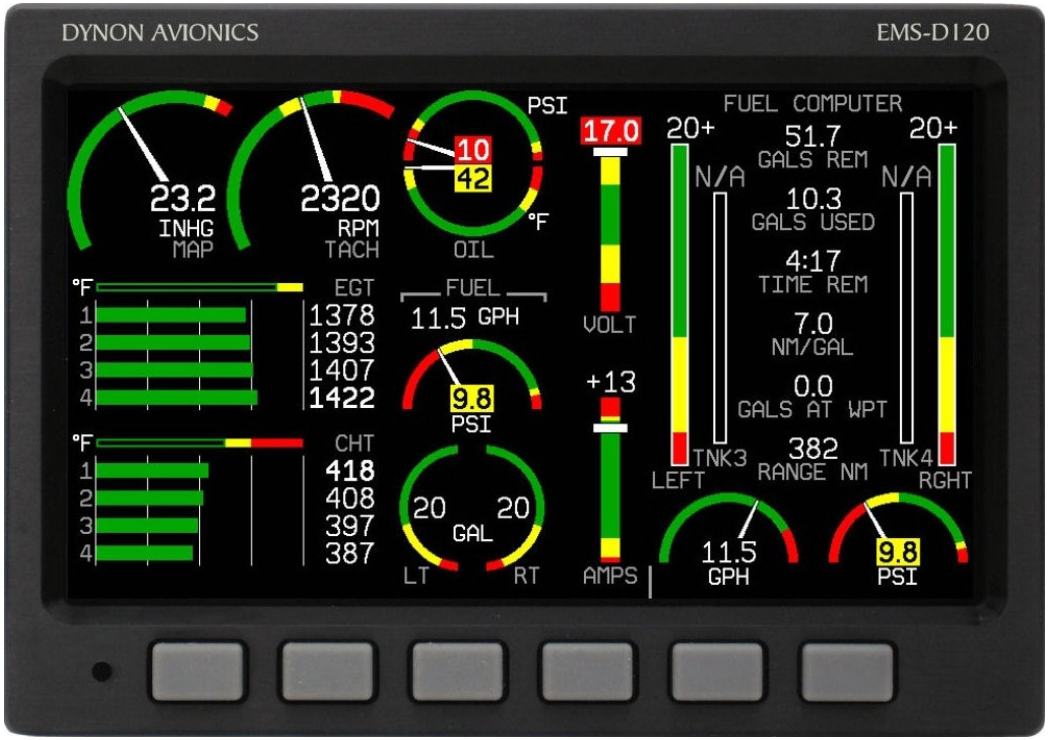
We have to know, to calculate the needed corrections: distance of the target; bullet speed, spindrift and drop; temperature, barometric pressure and altitude of our position; wind direction and speed; barrel's rate-of-twist; Coriolis effect; mirage; cosine angle to the target; etc.

Must be good at math and the *Ballistic Slide Rule* is a standard issue for Special Forces snipers: it is easier and faster than a computer and never fails!



As you see analog devices still useful in many fields, their reading is less accurate than the digital, but easier to evaluate: the position of the pointer indicates a strong wind, with no need to interpret the numeric value.

Indeed, aircraft still have analog panels. In one second you can check many instruments: fly safe, fly analog.



The future of these traditional devices looks hard, but the analog interface is too practical and will survive: here on the left you can see an E-6B in form of navigation app, still used on aircraft.

The analog is back in a digital environment, but the real slide rules wait patiently in the dark: they will be here and ready, when the current electronic gadgetry fad fades!