

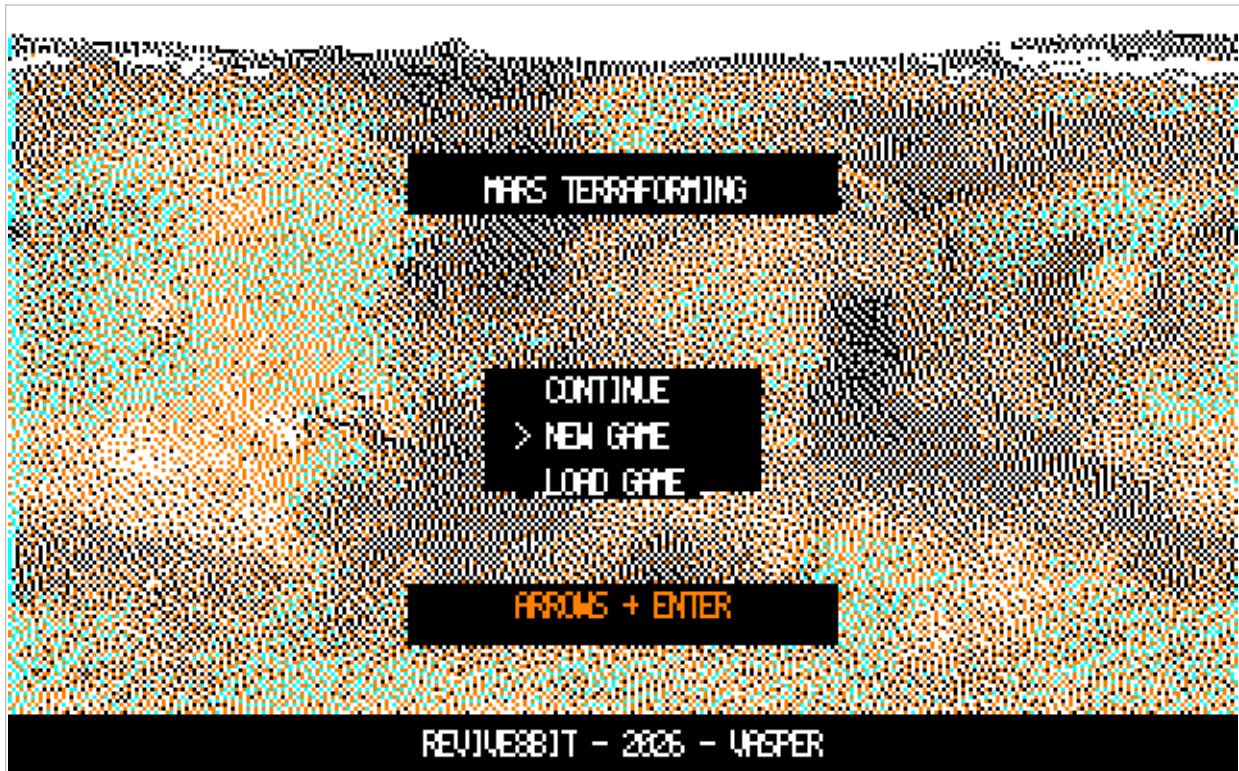
MARS TERRAFORMING

For the Amstrad CPC 6128 • Disc

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MARS TERRAFORMING

A GEOPLASIA SIMULATION IN 64K



1. THE STORY SO FAR...

The year is 2071. After decades of flags, footprints and abandoned landers, humanity is finally staying.

You are the Colony Director of the first permanent settlement on Mars — four brave souls, one landing capsule, and a planet that wants you dead. The air is unbreathable, the nights fall to -60°C , the dust storms last for weeks, and the nearest hardware shop is fifty million kilometres away.

Your mission is nothing less than **GEOPLASIA** — from the Greek γῆ (earth) and πλάσσω (to mould): the shaping of a whole world. Melt the polar ice. Thicken the atmosphere. Seed the first hardy lichens. Warm the planet degree by stubborn degree, until the day a colonist can step outside, take off their helmet, and breathe.

Millions watch from Earth. Your sponsor watches the budget. And the planet? The planet is patient. It has been dead for four billion years and it is in no hurry to live.

Keep your crew alive. Build. Research. Terraform.

Mars will not make itself green.

2. LOADING INSTRUCTIONS

1. Switch on your Amstrad CPC 6128 (or CPC with disc drive and 64K).
2. Insert the TERRACPC disc into the drive, label side up.
3. Type RUN"TERRA and press **ENTER**.
4. The REVIVE8BIT splash screen appears — press **SPACE** (or just wait ten seconds) and the Red Planet will rise before your eyes while the game loads.

The game boots into the **title menu**, painted over a full-screen photograph of Mars streamed straight from the disc:

- **CONTINUE** — resume the game held in memory (shown only when one exists)
- **NEW GAME** — found a new colony
- **LOAD GAME** — restore your colony from one of three disc save slots

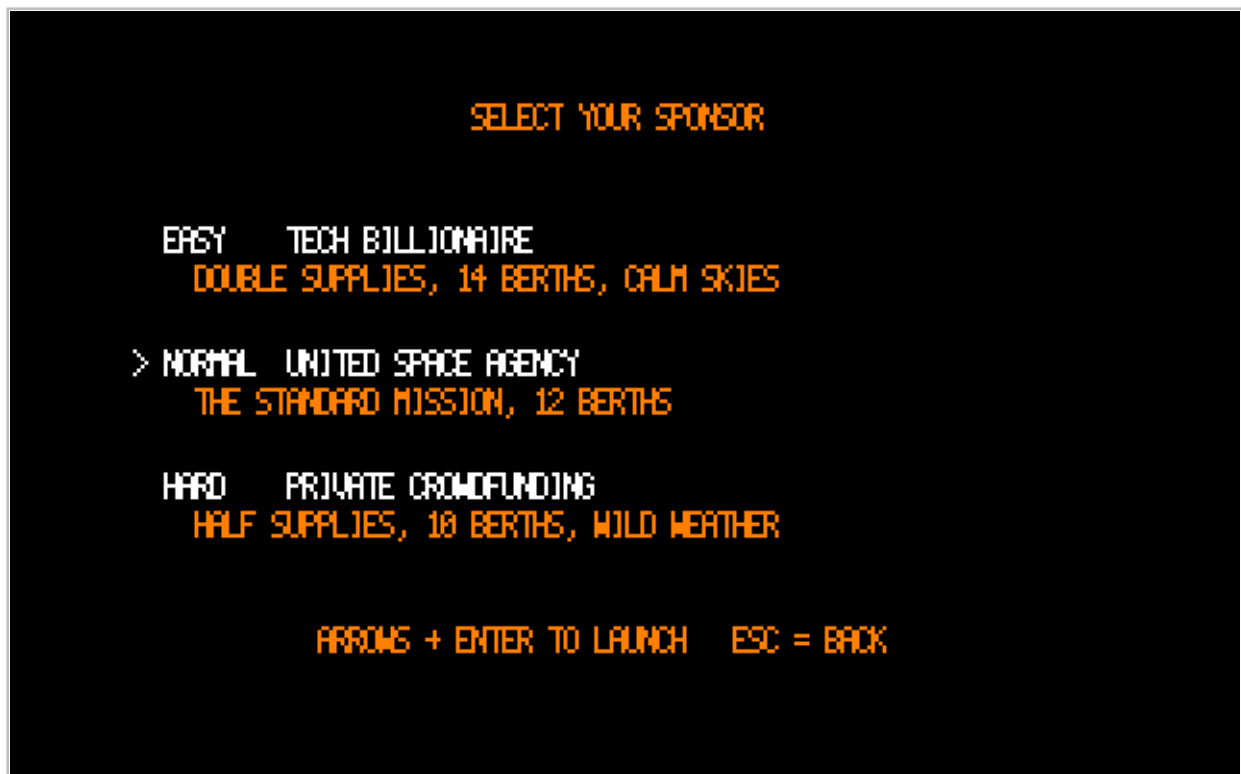
Move the bar with the **cursor keys** and confirm with **ENTER**.

KEEP THE DISC IN THE DRIVE and make sure it is not write-protected. The game reads its title picture from it and writes your saved colony back to it.

3. CHOOSING YOUR SPONSOR

Nobody terraforms a planet for free. When you start a NEW GAME, three patrons offer to bankroll the mission — and set how hard your life will be:

Sponsor	Difficulty	Supplies	Capsule berths	Martian weather
TECH BILLIONAIRE	Easy	Double	14	Rare, brief, mild
UNITED SPACE AGENCY	Normal	Standard	12	The standard experience
PRIVATE CROWDFUNDING	Hard	Half	10	Frequent, long, harsh



Your sponsor is remembered by disc saves, so a Crowdfunding colony stays honestly hard even after a reload.

4. YOUR CREW

Four specialists made the trip. Each gives **1.5x output** when assigned to a building matching their calling — and engineers repair storm-damaged buildings at double speed:

- **ADA REYES**, Engineer — reactors, recyclers, machinery
- **BORIS KANE**, Geologist — drills and mines
- **CHEN LIU**, Botanist — hydroponics, farms and forests
- **DARA OKAFOR**, Climatologist — research and planetary science

More colonists will be born (or arrive) as your colony prospers and housing allows. People need oxygen, water and food **every single tick** — life support is all-or-nothing, and the reaper keeps books.

5. THE CONTROLS

Key	Action
Cursor keys	Move the hexagon cursor (auto-repeats; the camera follows)
B	Build menu
T	Research menu
ENTER / RETURN / COPY	Confirm · place building · dismiss banner
ESC	Cancel / close menu or info screen. While placing a building, any other action key also cancels the placement and does its job at once

L	Assign an idle colonist to the building under the cursor
K	Unassign that building's worker
R	Recycle the building under the cursor (needs Reclaim tech)
,	Jump to the next mine that has run dry
.	Jump to the next building with no crew
H	Home — centre on the landing capsule
M	Colony minimap — the whole planet on one screen (M/ESC closes)
I	Info screens — 7 pages, opening on the colony report (then legend, buildings ×2, keys, technologies ×2)
SPACE	Pause / resume
1 / 2 / 3	Game speed 1× / 2× / 4×
F1	Save the colony to disc (pick one of 3 slots)
F2	Load the colony from disc (pick one of 3 slots)
Q Q	Quit to the title menu (press twice — the game stays in memory)

The ring is the selection. Whatever hexagon the cursor ring sits on is the selected one — no clicking, no confirming. Park the ring on a building and press L, K or R directly.

6. READING YOUR CONSOLE



Press **M** at any time for the **colony minimap**: the whole 32×24 map on one screen — terrain in patterns, your buildings in white, deposits dotted, the cyan rectangle marking what the main view shows, and your cursor striped. Press M or ESC to return.



The top band

Your complete ledger, updated as the colony breathes:

```
E 2500^ W 800\ O 801^ F 601 M 300 SI 0 CR 100000 CREW 4/4/12
T 0 P 0 O 0 W 0 SOL 1 x1
```

- **Energy** · **Water** · **Oxygen** · **Food** · **Materials** · **Si**licon · **CR**edits, each with a **trend arrow**: rising ^, falling \, steady blank. Watch the arrows — they see famine coming before you do.
- **CREW 3/4/12** means three colonists working, four alive, and room for twelve — build habitats before the capsule fills up.
- **TMP PRS OXY H2O** — terraforming progress towards each planetary target (temperature, pressure, oxygen, water), in percent. **SOL** — the Martian day. **SPD**: — the game speed (P when paused). **D** or **F** appear during a Dust storm or solar Flare.

The status corner

To the right of the research readout, events announce themselves in orange (DUST STORM! SOLAR FLARE! CAVE DISCOVERED!) and standing troubles nag in white — all of them at once, most urgent first, separated by a slash: NO POWER / CREW NEEDED / MINE DEPLETED...

The rest of the console

- Current research and its progress percentage, left of the status corner.
- The hexagon under your ring: terrain, deposit and how much of it remains, any building with its state — construction %, running efficiency %, or the dreaded NO CREW.
- A one-line key reference at the very bottom of the screen, for when this manual is in the other room.

7. THE BUILDINGS OF MARS

Twenty-one structures stand between your crew and the void. Costs are paid in credits up front; construction then consumes materials every tick — a site with no materials **stalls**.



Shelter

Building	Purpose
LANDING CAPSULE	Your start. Houses the first crew. Cannot be recycled.
HABITAT MODULE	Houses 6 more colonists. Must touch an operational habitat.
DOMELESS CITY	Open-air housing for 20 — the crown of a terraformed world.

Power

Building	Purpose
SOLAR PANEL	Energy by day. Needs open ground (flatland, lowland, highland, crater). Dust storms cripple it.
BATTERY	Stores energy for the long Martian night.
FISSION REACTOR	Big, steady power. No sun required — no mercy from the budget either.

Life support & food

Building	Purpose
O2 RECYCLER	Makes breathable oxygen.
ICE DRILL	Water — place it on an ice deposit .
HYDROPONICS	Grows food.

Industry

Building	Purpose
REGOLITH PRINTER	Prints materials from Martian soil — needs a regolith deposit .
IRON MINE	Materials from an iron deposit .
SILICON MINE	Silicon from a silicon deposit .

EXPORT TERMINAL	Sells silicon to Earth. Your only income.
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Science & planetary engineering

Building	Purpose
RESEARCH LAB	Research points for the tech tree.
GHG FACTORY	Pumps greenhouse gases — warms the planet.
ORBITAL MIRROR	Focuses sunlight from orbit — warms it more.
MAGNETOSPHERE STATION	Artificial magnetic shield — stops the atmosphere leaking away.
COMET REDIRECTOR	Steers icy comets into the atmosphere: water and pressure, special delivery.

Biosphere

Building	Purpose
CYANOBACTERIA FARM	Seeds the air with oxygen-making microbes.
GM FOREST	Cold-resistant trees: oxygen and living biomass.
FAUNA RESERVE	A working ecosystem — the biosphere's crown jewel.

BUILDINGS		
LANDING CAPSULE	START BASE, HOUSES 4 CREW	
HABITAT MODULE	HOUSES 6 MORE CREW	5000CR 70M
SOLAR PANEL	ENERGY BY DAY, DUST HURTS IT	2000CR 40M
BATTERY	STORES ENERGY FOR THE NIGHT	1500CR 30M
O2 RECYCLER	MAKES BREATHABLE OXYGEN	3000CR 50M
ICE DRILL	WATER FROM AN ICE DEPOSIT	2500CR 50M
HYDROPONICS	GROWS FOOD	3500CR 60M
REGOLITH PRINTER	PRINTS MATERIALS FROM SOIL	2000CR 20M
RESEARCH LAB	RESEARCH POINTS	4000CR 60M
FISSION REACTOR	BIG STEADY ENERGY, NO SUN NEEDED	12000CR 120M
IRON MINE	MATERIALS FROM AN IRON DEPOSIT	3000CR 40M
SILICON MINE	SILICON FROM A SILICON DEPOSIT	3000CR 45M
EXPORT TERMINAL	SELLS SILICON FOR CREDITS	4000CR 60M

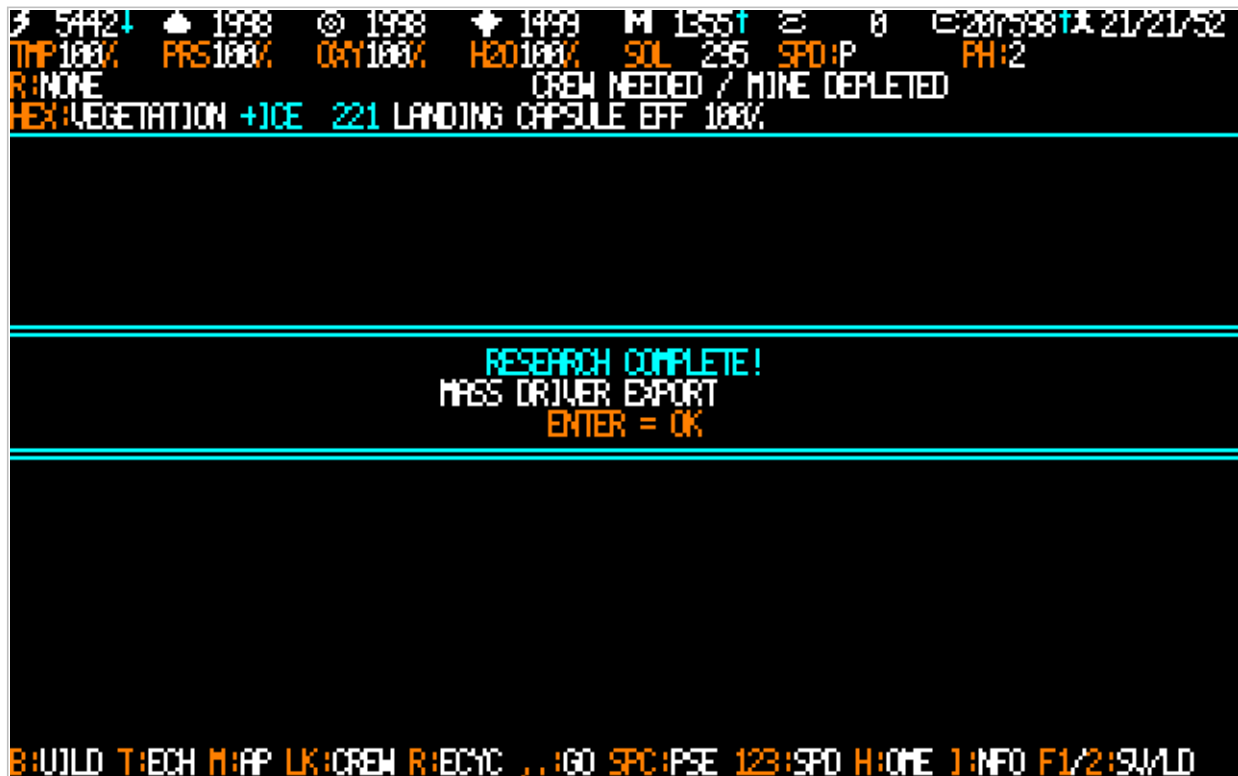
< PAGE 4/9 > ESC = CLOSE

Placement rules the planet enforces: nothing builds on mountains (until MOUNTAIN DRILLING is researched — and then only mines) or open water (until WATER PURIFICATION — and then only ice drills, on swallowed ice veins); mines and drills demand their matching deposit (look for the badge on the hexagon); habitats must chain to the existing base. When a deposit runs out, its badge fades from the map — press **J** to find the orphaned mine and **R** to recycle it.

Not every vein shows itself. About a third of the iron, silicon and regolith deposits are buried too deep for the orbital scans — the hexagon looks empty and refuses a mine. As long as at least one Geologist is assigned to a building, the crew keeps surveying: about once a sol the hidden deposit nearest the landing capsule is revealed with a chirp, its badge popping onto the map. Surface ice is never hidden.

8. RESEARCH & TECHNOLOGY

Press **T**, choose a technology, and your research labs will chip away at it. A banner announces every breakthrough:



climb from humble salvage to planetary surgery:

RECLAIM → recycle buildings for a partial refund · **SILICON EXTRACTION** → silicon mines · **HEAVY METALLURGY** → iron mines · **NUCLEAR FISSION** → fission reactors · **MASS DRIVER EXPORT** → export terminals · **GHG FACTORIES** → greenhouse-gas factories · **ORBITAL MIRRORS** · **ARTIFICIAL MAGNETOSPHERE** · **COMET REDIRECTION** → the planetary heavyweights · **CYANOBACTERIA & LICHEN** · **GM COLD-RESISTANT TREES** → the biosphere · **DOMELESS CITIES** → the endgame · **MOUNTAIN DRILLING** → mines may finally dig the rich veins locked inside mountains · **WATER PURIFICATION** → ice drills may work afloat, on ice veins the rising waters have swallowed · and **ROVER NETWORKS**, because someone has to fetch things.

A proven road to victory: *Fission* → *GHG* → *Mirrors* → *Comets & Cyanobacteria* → *Trees*, with a Magnetosphere to plug the leak.

9. HAZARDS OF THE RED PLANET

Mars fights back. At any moment (your sponsor sets how often):

- **DUST STORM** — solar output collapses for a long stretch. Batteries and reactors are your umbrella.
- **LIFE-SUPPORT FAILURE** — a life-support building breaks down. Engineers repair it twice as fast.
- **SOLAR FLARE** — radiation disables a building and drains crew health, *unless* your colony is shielded.

- **CAVE DISCOVERY** — good news for once: a natural shelter that protects the colony from flares, forever.

10. WINNING AND LOSING

The planet is terraformed — and the game **WON** — when all four metrics reach target:

Metric	From	To
Temperature	−60°C	0°C
Pressure	0.6 kPa	10 kPa
Atmospheric O ₂	0.1 %	15 %
Water coverage	0 %	30 %

You **LOSE** if your last colonist dies. Mars keeps the buildings.

PHASE 2: THE LIVING PLANET

Victory is not the end. The moment the fourth metric touches target, a banner rises and the **PH**: field on your console flips to **2** — the planet is alive now, and living planets bite back:

- **Migration.** Ships from Earth land settlers whether you have beds or not. Outgrow your housing and the whole colony drags along at 85% output while health erodes. Build habitats, domes — or else.
- **Runaway greenhouse.** Push temperature or pressure more than 4 points past target and the sky turns against you: crew health decays, your hard-won vegetation withers, and the oceans vaporise hexagon by hexagon. Shut the GHG factories down, or research **ATMOSPHERE SINKS** and build the **CRYO CAPTURER** to chill the planet back into its comfort zone.
- **Faction politics.** Industrialists sour when the mines idle or the colony overcrowds; ecologists sour when the land is barren or the greenhouse runs away. Let either faction's approval collapse and every Industry (or Biosphere) building **walks out on strike** until approval recovers — a **TOWN HALL** or two keeps everyone at the table.
- **Pollution.** Printers, mines and gas factories smog the sky; past the threshold the smog eats your planetary oxygen and withers the forests. **ATM SCRUBBERS** clean it faster than the wind does.
- **The Martian Plague.** Once your oceans pass 25% coverage, the water breeds something new. After a grace period the plague ramps a drag on ALL production (down to half) — only a **staffed ISOLATION WARD** cures it (build one, then press **L** on it to assign a medic).
- **ARCOLOGY.** No technology needed — the living planet itself unlocks the tower that houses sixteen colonists.

The status corner names each crisis while it stands, and the four tier-5 technologies appear in the research menu only after the latch. A terraformed planet is not a trophy — it is a garden, and gardens need tending.

And when the garden thrives, industry follows: research **QUANTUM PROCESSING** and the Quantum Plant sells your silicon at ten times the terminal's price; research **AUTOMATED LABOR** and each AI Drone Hive runs four crewless buildings; and once twenty-four colonists walk the planet, the **STOCK EXCHANGE** opens — shipping materials to Earth alongside the silicon.

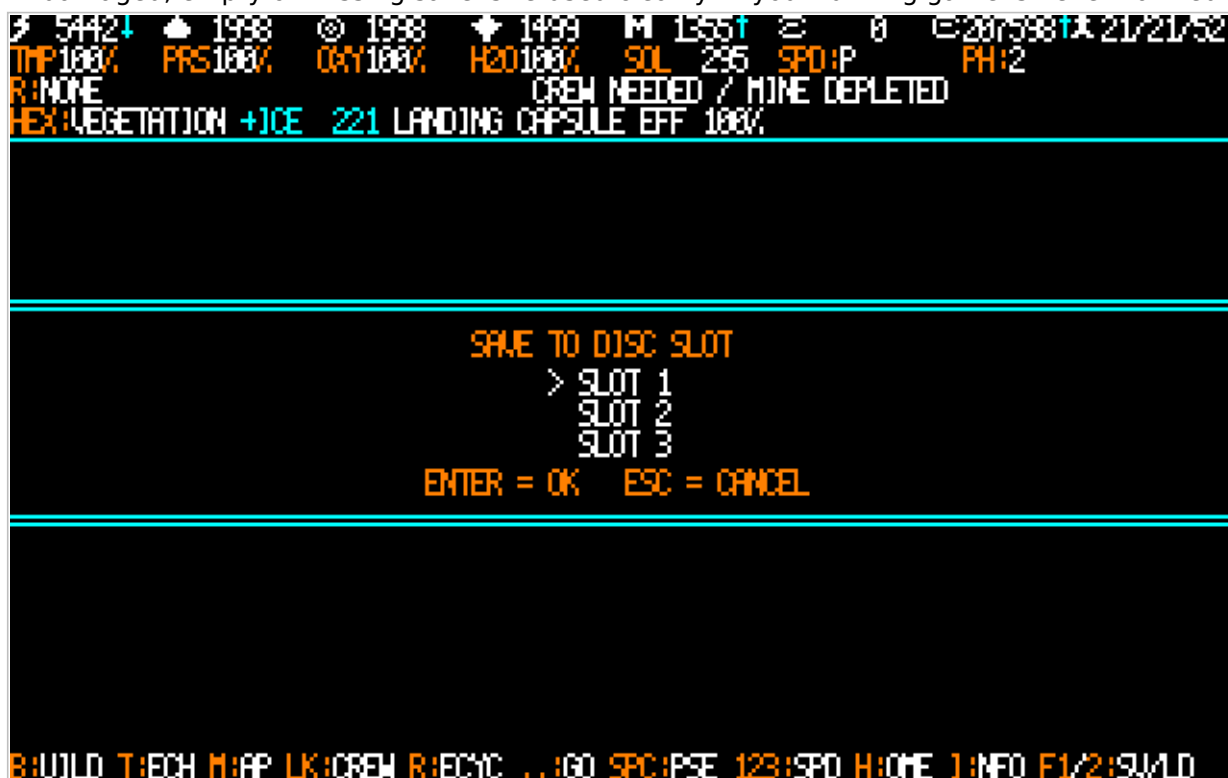
The boom brings its own weather. **DEEP CORE DRILLS** pull endless ore from the mantle, but every drill strains the crust — spread them out, or a **marsquake** cracks everything beside them. A thick, wet atmosphere breeds **hurricanes** that sweep solar panels and the low ground: raise **SEA WALLS** near what matters. Your own forests breed **invasive species** that devour crops and

green alike — **GENETIC VAULTS** (staffed) keep them down. And industry more than six hexes from the capsule runs at **half speed** until a **HYPERLOOP TERMINAL** links it back to the city.

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11. SAVING YOUR COLONY

- **F1** opens the slot picker: choose one of **three save slots** with the cursor keys and press **ENTER**. Each slot is a reserved track of the game disc, so three different colonies can live side by side. The save is read back and verified before the game declares it safe.
- **F2** (or LOAD GAME on the title menu) opens the same picker and restores the chosen slot. A damaged, empty or missing save is refused cleanly — your running game is never harmed.



- **Q Q** parks the colony in memory and returns to the title, where CONTINUE picks it right back up.

12. HINTS FROM MISSION CONTROL

1. **Watch the arrows, not the numbers.** A falling \ on water today is a dead colonist next week.
2. **Deposits are not forever.** The little polar deposits die fast; the big ice fields (~1200 units) are your waterworks.
3. **Materials before ambition.** Every construction site sips materials each tick. Feed the regolith printers first.
4. **Silicon is money.** There is no other income. Research Silicon Extraction and Mass Driver Export early, then let the terminal sing.
5. **Chase the lagging metric.** The victory gate is the *slowest* of the four numbers — build to

push whichever trails.

6. **Water unlocks the biosphere.** Nothing green grows below 5 % water coverage. Melt ice, redirect comets, then plant.
 7. **Recycle your mistakes.** A young building refunds up to 90 % of its credits. An old one, far less. Prune early.
 8. **Two Qs in haste, no colony wasted.** Quitting keeps the game in memory — CONTINUE is instant and free.
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13. CREDITS

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Programming, design & pixel art... Vassilis N.Perantzakis & Claude  
Platform ..... Amstrad CPC 6128, 64K, Mode 0+1 split, AY-3-8912  
Language ..... Z80 assembly (all of it)  
Reference simulation & test harness ..... Python  
Mars ..... courtesy Mars
```

TERRACPC is an original colony simulation. It is not affiliated with any board game.

In the proud tradition of 1980s software houses: this program is supplied on the strict understanding that the tape... er, disc... may be copied as much as you like, because it is open source. Lending it to your friends is not only permitted but encouraged. No dongles were harmed.

NOW GO AND MAKE MARS GREEN.