



3. RADIO TELESCOPE

SOLUTION

The graphs represent chemical elements. Each encodes an atomic number in base 10: the tall spike is the 10's place and short spike is the 1's place. E.g. γ is 26: $2 \times 10 + 6 \times 1$.

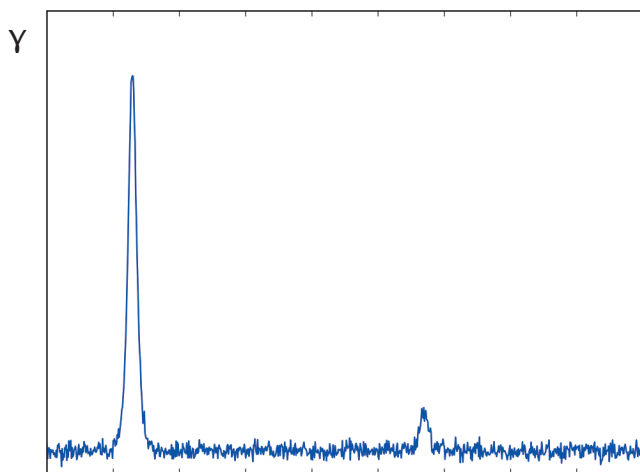
The sequences represent chemical compounds. The common names fit into the grid, which is formed into a cube shape with the names wrapping around edges.

When the letters in squares with polygons are read in the correct order (shown in a line on Standard puzzle, circle on Expert), they spell WE ARE COMING.

“Hi there, team. I’m Dr. Arroway, and I run the radio telescope group here. We followed up on your discovery and pointed the array at Iota. Sure enough, we found a signal! It’s showing highly anomalous changes over time, so we’re pretty sure this is a signal from intelligent life. That’s tremendously exciting!

“We’re astronomers, not signal analysts or linguists, so we have no idea what to do with the data. Perhaps you could bring the human *element* to this problem?”

The signal consists of these distinctive patterns, pulsed in various sequences:



α	11	Na
β	6	C
γ	26	Fe
δ	8	O
ϵ	17	Cl
ζ	1	H
η	16	S

These are the sequences received:

WATER	$\zeta\zeta\delta$
SALT	$\alpha\epsilon$
METHANE	$\beta\zeta\zeta\zeta$
SUGAR	$\beta\beta\beta\beta\beta\zeta\zeta\zeta\zeta\zeta\zeta\zeta\zeta\zeta\zeta\delta\delta\delta\delta\delta$
ACETYLENE	$\beta\beta\zeta\zeta$
OXYGEN	$\delta\delta$
HYDROGEN	$\zeta\zeta$
PYRITE	$\gamma\eta\eta$
SULFUR DIOXIDE	$\eta\delta\delta$
OZONE	$\delta\delta\delta$



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“We also received this NTSC image,” Dr. Arroway explains, “but that just *compounded* our confusion.”

