



# The unified model of nucleosynthesis and star & planet formation in black holes, nuclear fission, explosive and effusive volcanism

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# **The unified model of nucleosynthesis and star & planet formation in black holes, nuclear fission, explosive and effusive volcanism**

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nucleosynthesis

21

22 *Abstract : The heavy elements are synthetized in black holes and expelled thanks to local*  
23 *supercriticities inside. These black hole eruptions produce pieces of heavy atoms catching with*  
24 *them some of the black hole, a wrapping event around that black hole produces the star (in case*  
25 *there is enough mass for sustained fission), planet / moon and nuclear fission is together with*  
26 *fusion the motor of stars. This is demonstrated through many levers. Gravitational waves are*  
27 *constituted by waves of neutrons, when they impact the ground they may trigger underground*  
28 *nuclear blasts, that produce magma caves (explaining volcano swarms). Black holes erupting*  
29 *from the inside of the stars produce hyper variations in the regime of brightness (eruptive*  
30 *variables for instance), and in planets or moons, effusive volcanism. The strike of gravitational*  
31 *waves may be powerful enough to blast all nuclear plants working in continent-wide regions. The*  
32 *ridge on Iapetus is a perfect proof of the whole theory.*

33

34 Oklo is only the very tip of the iceberg – a seed for thought but nowhere near close to the extent of  
35 the importance of nuclear fission in nature – which is hugely significant, crucial in volcanism and  
36 star dynamism, and in the production of all stable elements (for the light elements before the split in  
37 the Aston curve, through ternary fission products and then fusion under intense pressure and heat).  
38 The « actinide boost » in a number of stars is a long-time issue which can be resolved – so is the  
39 issue of “volcano clusters” and the extreme solar particle events leading to recorded spikes in  $^{14}\text{C}$   
40 and  $^{10}\text{Be}$ , as well as the depletion in  $^{238}\text{U}$  in volcanic lavas, star “bursts” in nebulae, antineutrinos  
41 found in acute levels near subduction areas of the Earth and many other elements that will be  
42 concisely presented in this paper. All of these events, among others that will be presented below,  
43 can be linked to the same very easy explanation of nuclear fission in stars and planets.

44

45 Some stars have been confirmed to be uranium and thorium-rich. This is confirmed by spectral  
46 research, see for instance Hill et al 2017 as well as Barbuy et al 2011. Both teams found U and Th –  
47 rich stars and used the classical theory to assess that these stars are very old. They should on the  
48 contrary be relatively *recent* agglomerates of matter.

49

## 50 **1. On volcanoes**

51

52 Barytine and zirconium mines are located close to old volcanoes, as cesium and rubidium mines  
53 (Bernic Lake for instance is the most famous) ; one of the main mines for palladium and platinum,  
54 the Stillwater mine, is in the granitic Beartooth mountains of Montana ; volcano eruptions are also  
55 well-known sources of bromine and iodine that are light elements with a very low boiling points  
56 (see for instance Aiuppa et al 2005 on Etna emissions of bromine and iodine). All these elements are  
57 the daughter products of major fission products, for thermal neutrons. The part 5 of the article  
58 points to a geological differentiation based on the yield of fast neutrons, for indium and tin, in  
59 granitic areas.

60 These elements already confirm that nuclear fission is the motor for magmatic formation and  
61 explain the contribution of water to explosive increases of magma in subduction magmatic  
62 chambers (tornillos which simply are nuclear explosions), as water brought by subduction is the  
63 perfect incident neutron moderator for nuclear fission supercriticalities propped up sometimes by the  
64 impact of neutrons from nuclear supercriticalities in stars. It suggests a direct link between novas,  
65 supernovas and volcanism. The KamLAND observatory presented the first proof for geoneutrinos  
66 in July 2005 (Domogatsky et al 2004 already noted a possible antineutrino confirmation of fission  
67 in the Earth's core) – De Meijer & van Westrenen 2008 use them to suggest continuously operating  
68 fission reactors in the Earth's core. MacDonald 1988 also notes findings of dihydrogen gas in the

69 Kola borehole in Russian territory. This is also confirmed by the very high intensity of the  
70 antineutrino flux in KamLAND (much higher than in other detectors), close to a subduction area of  
71 the Pacific belt, as well as by research on the actinide content of volcanic ash. The ash of the St  
72 Helens volcano, for instance, was depleted in  $^{238}\text{U}$  and  $^{232}\text{Th}$  (Strauss et al 1981) when compared  
73 with surrounding soils.  $^{238}\text{U}$  was also depleted relatively to  $^{230}\text{Th}$  in volcanic ash (Huckle et al  
74 2016).  $^{238}\text{U}$  was more depleted than  $^{232}\text{Th}$  in granite rocks (Rosholt et al 1973), including up to  
75 165 feet underground after drilling the rock. The “removing” of uranium is easily explained by  
76 fission instead of erosion (as suggested by the authors of the last article).  $^{238}\text{U}$  has in average  
77 higher fission cross sections than  $^{232}\text{Th}$ , even for neutrons above 1 MeV. These elements confirm  
78 that  $^{238}\text{U}$ ,  $^{232}\text{Th}$  are major contributors to fission underground (involving therefore extremely fast  
79 neutrons, i.e. relativistic particles that have only begun to be slowed down by the impact onto the  
80 superior layers of the Earth’s crust). Supercriticities are triggered by the intense pressure of rocks.  
81 Each supercriticality causes a “tornillo” and the light part of the molten down rock percolate in the  
82 direction of the surface of the Earth, leading to magmatic chamber formation. This percolation  
83 depressurizes temporarily the underground, slowing down the nuclear reactor until a new  
84 supercriticality is triggered by 1. spontaneous fission or, exceptionally, a nova / supernova where  
85 obviously supernovas are the main factor for the most violent cases 2. more pressure from the  
86 plaques 3. or an addition of water (and carbon from the organic debris on the plaques) from  
87 subduction, 4. or heat (which accelerates the movement of atoms and increases cross section as  
88 neutrons are more likely to meet an atom throughout their life (or much more likely several of the  
89 above). For the 1., along with spontaneous fission must be added as well reactions of neutron  
90 spallation such as  $\alpha, n$  (and, less frequently,  $\gamma, n$  if an activation product of an anterior  
91 nuclear fission reaction has a gamma ray emission powerful enough to trigger a “photoneutron” - or,  
92 obviously, gamma rays from nuclear fissions, or photo-fission...). This is just a natural nuclear  
93 reactor. For the continuation of the nuclear fission chain reaction, even the neutron spallation caused

94 by a proton (from neutron decay, or ternary fission products) onto a heavy element like lead (much  
95 more frequent underground than the light elements needed for alpha, n and gamma,n), and of course  
96 n,n and n,2n with the same heavy elements, can help.

97 Many low-scale volcanic events can be triggered without a significant nova (for instance the  
98 permanent activity of the Stromboli volcano), yet supernovas are easy to link to simultaneous  
99 intense volcanic activity (high VEIs and supervolcanos) in geographic clusters (indicative of impact  
100 zone for supernova neutrons), as I show in part 3. These element can allow us to reconstitute not  
101 only a planetary motor for temporary increases of fission and fusion (where, underground, the  
102 intense pressure onto ternary fission products may allow for some nuclear fusion, explaining the  
103 accumulation of dihydrogen as well as other light elements close to the Earth's surface found for  
104 instance in the Kola peninsula noted by MacDonald in 1988, the findings of water as ice in  
105 diamonds coming from deep in the mantle by Tschauner et al 2018, or the fact that one of the main  
106 minerals containing lithium, lepidolite, contains as well several atoms of oxygen), but also of course  
107 for the permanent dual fission-fusion motor of stars, under a much higher pressure due to the initial  
108 mass, which I claim to be constituted solely by heavy atoms, i.e. actinides and, if there are islands  
109 of stability, atoms that could be much beyond the actinide class, maybe much more exotic atoms not  
110 yet produced in experimental research but that could certainly be confirmed one day, and thus more  
111 likely to fission due to their heavy mass (and thus obviously unlikely to remain if these atoms have  
112 all fissioned earlier in the Universe's history even though some should remain deep underground  
113 and in dwarf stars ; or, better said, in the history of our local area, visible to our instruments, as will  
114 be pinpointed at the end of the article). The fusion under intense pressure of ternary fission  
115 products, beta minus particles and neutrons produces lighter atoms such as oxygen, carbon, and can  
116 very clearly be a better explanation for most massive hydrocarbon deposits than the current model  
117 of carboniferous-era remains of vegetals and animals (it is simple to note the proximity of all major  
118 coal / oil / gas deposits and significant granitic areas / uranium mining areas – the Arabian

119 Peninsula has a magmatic shield, the tar sands mining areas in Alberta, Utah, Wyoming, Colorado  
120 are not far from uranium mining areas, the situation is identical in Russia and Kazakhstan, the old  
121 coal resources of Eifel in Germany and St-Etienne in France are in plutonic soils, the hydrocarbons  
122 in the Northern Sea are close to the granitic areas of Scotland, same for Norway's hydrocarbons  
123 near Stavanger) and the hypothesis that carboniferous era remains of vegetals and animals are  
124 linked to hydrocarbons is in the view of the author wrong as a whole especially as other deposits  
125 e.g. delta deposits are simply explained through river charring of these hydrocarbons. It explains as  
126 well as the emergence of the first resources of water (confirming obviously the old theory of water  
127 originating from volcanoes).

128

## 129 **2. On stars and planets**

130

131 Type 1A supernovas are evidence : the passing of a big star close to a very small one mean that the  
132 small one will receive much more neutrons as well as hydrogen captured by gravity than it is  
133 accustomed to in its internal nuclear equilibrium ; thus it reacts extremely violently, and goes  
134 hypercritical. The bright light of Type 1A supernovas confirms that dwarf stars are mostly made of  
135 heavy actinides (and the more hypothetical heavy transactinides in case there is one or several  
136 islands of stability), but that these dwarf stars failed to light up (to stabilize at criticity) due to  
137 insufficient mass and thus did not accumulate the much needed hydrogen moderator and fusion  
138 fuel. The amount of unfissioned heavy actinides (and hypothetical transactinides) explains  
139 extremely well the powerful light of these supernovas which are highly dominated by fission  
140 whereas other supernovas are more equilibrated between fission and fusion (as the internal core  
141 made out of actinides / transactinides collides with the outer sphere at detonation, compressing it  
142 and fusing it). Pluto is absolutely certainly such a sub-brown dwarf star that has been captured by

143 the Sun (as it is in an orbit that is not parallel to the rest of the Solar System) and which underwent  
144 temporary criticality at some point in its life before cooling down, the lightest elements produced  
145 through fusion processes, i.e. carbon, hydrogen, ending up at the surface, forming methane ice.  
146 The discovery by Head et al 2011 of an intense volcanism on Mercury also confirms the heavy  
147 interaction between solid heavy atoms planetary cores and neutrons from the permanent fission  
148 processes in stars. Mars, where iron oxyde is significant, can be opposed to Venus, with a lot of  
149 basalt and volcanoes (where the planet seems an immense volcano bubble), and thus Mercury  
150 certainly was even more active but has, in a way, “expired” because of too much neutron fallouts  
151 from the Sun burning fast its actinides (and, potentially, transactinides in case there is/are island(s)  
152 of stability but I would hypothesize that such super heavy atoms with a long half life would also  
153 have a very elevated cross section for fission ; in fact it seems likely that they would act as “trigger”  
154 for the flaring up of stars<sup>1</sup>).

155 It is obvious that gas bubbles would not alone survive close to a black hole. A much heavier star  
156 core, made with actinides and transuranics beyond the actinide class, would however resist the  
157 permanent attraction of the black hole. The recent discovery of proto stars close to a black hole is an  
158 excellent confirmation that stars are not made with light elements but with heavy, radioactive  
159 actinides and transuranics beyond the actinide class, compressed up to a permanent fission reactor  
160 thanks to the strength of gravity, where complex nuclear reactions create the hydrogen fuel (tritium  
161 for instance is an unfrequent fission product from ternary fission) for the parallel nuclear fusion  
162 process and the thermalisation of neutrons, whereas gravity also increases pressure and thus reduces  
163 critical mass.

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<sup>1</sup> One scenario is that these extremely heavy atoms, staying close to the core of the star, would need extremely fast neutrons to have a good cross section yet for these extremely fast neutrons (close to c), their cross sections would be much higher than for lighter atoms. It may even be possible that very few of these super heavy atoms could be still found inside the mantle of Earth and that they have a special contribution to explosive volcanism, for super-eruptions).



164 Neutrons from fission will themselves decay over a certain time into protons, with a beta minus  
165 decay, they are the basic bricks of hydrogen. Ternary fission sometimes produces protons. All of  
166 these protons can combine with beta particles from fission products to produce hydrogen. Positrons  
167 from the capture of helium-4 nuclei of actinide & transuranic decay and ternary fission products  
168 (where lighter elements capturing an alpha particle decay by emitting a positron) are another  
169 element as they conjoin with neutrons and beta particles of fission products to create hydrogen.  
170 Fission products beta particle decay is crucial and demonstrates here its “usefulness” in the global  
171 star cycle. Tritium from ternary fission also is a source for helium-3 which then produces protons  
172 through neutron impacts. Fission products and their transmutation are a key in production of other  
173 elements together with nuclear fusion of for instance helium-4 from ternary fission products (in  
174 combination with the electrons of fission products beta decay). Hence ternary fission is key in  
175 providing the usual nuclear fusion cycle with its fuel. I claim that light elements in stars are solely  
176 the product of nuclear fission, ternary fission products and radioactive decay, through combinations  
177 of the elementary particles in a context of high gravity forces and temperature, and of course slow  
178 capture of neutrons, which also contributes obviously to the diversity of heavy elements beyond the  
179 iron limit of the Aston curve, from neutron activation of fission products combined with radioactive  
180 decay.

181 Neutron stars are also an excellent way to see the expulsion of all fission product matter outwards in  
182 violent hypercriticality events where only neutrons remain at the end, agglomerated and compressed  
183 by their own gravity forces.

184 A thermonuclear reactor at equilibrium is obvious (where the progressive loss of heat & mass leads  
185 to decompression and the slowing down of fission and fusion), where interactions with nearby  
186 supernovas are a major and essential factor in star divergence onto supernova through intakes of  
187 neutrons and other elements (hydrogen and helium for instance) disrupting the internal equilibrium,  
188 and “waves of supernovas” from one star to another. These neutrons are major constituents of the

189 masses of accelerated matter that explain gravitational waves (which is also confirmed by the recent  
190 confirmation of gravitational waves in association with the collision of neutron stars, likely to expel  
191 a lot of neutrons at impact & implosion under themselves). In the collision of black holes as well it  
192 is not surprising to see them eject very small particles and not heavy atoms.

193

### 194 **3. Supernovas and volcanism**

195

196 It also appears that supernovas close to Earth like the one giving birth to Barnard's Loop are linked  
197 to supervolcanoes, in this case the Huckleberry Ridge Tuff and Cerro Galan supervolcanos.  
198 Neutrons from the Lagoon Nebula may also be linked. It may be possible to envision a better  
199 datation by linking Lagoon Nebula initial blast to Barnard's, which could have happened closer to  
200 each other than thought until now, and a method for predicting supervolcanoes from supernovas.  
201 The high temperature of stars around SN1987A even more suggests that the dramatic event  
202 provided neutrons to the fission core of these stars. The sudden relapse of gravity when a star  
203 explodes could act as a propulsive power for its own fission and fusion neutrons, which may gain  
204 speed up to close to the speed of light. All the VEI 6 volcanic eruptions in the 20<sup>th</sup> Century can be  
205 linked to supernovas which happened close to Earth in recent times : G1.9+0.3 happened  
206 approximatively in 1898 according to recent research and this event can be linked to the Santa  
207 Maria (VEI 6) and Montagne Pelée (VEI 4) eruptions of 1902 as well as the beginning of the  
208 activity of Novarupta (1912, VEI 6 – Hammer et al 2002 suggest that the build up to that eruption  
209 could have been slow) and of the Cerro Azul (1903, which led to a VEI 6 eruption in 1932 after a  
210 succession of volcanic events). SN 1987A may be linked to the Pinatubo eruption of 1991 (VEI 6),  
211 Hudson in Chile (1991, VEI 5+) as well as Rabaul (1990 - 1995) and Unzen volcanos (1991). For  
212 the Samalas supervolcano in 1257 (see Lavigne et al 2013 as well as Oppenheimer 2003), SN1006

213 could be the ideal explanation (in which the magma would have accumulated during a longer period  
214 than usual, leading to a bigger eruption than in the VEI 6 cases discussed above). SN1054 and  
215 SN1181, after SN1006, may also have contributed if the Indonesian archipelago was on their side at  
216 impact. SN 1604 may be linked to a lengthy accumulation of magma leading to the Mount Tambora  
217 supereruption (with the possible supplementary contribution of Cas A), and can even be linked  
218 locally to events such as the small volcanic eruptions that actually took place in the granitic –  
219 uraniferous-rich Mercantour massif in the French Alps, recorded in 1612 after the disappearance of  
220 an entire village (St Jacques) into a crater of “flames” (a plaque still commemorates the event near  
221 Valdeblore with the inscription “Hic omnes disparuerunt recquiesant in pace – 1612”) and another  
222 lava flow recorded at the same time (in the nearby Cians under the Raton mountain near the Dôme  
223 du Barrot) – see Rossi (2017), local historian pointing to this eruption in what is obviously a remain  
224 of the Alpine Arc volcanic chain close to the Mediterranean and thus still likely to be water-rich in  
225 the underground. SN1604 also coincides with highly destructive eruptions in the Mediterranean  
226 area (Vesuvius 1631, Kolumbo (Santorini area) 1650 and Etna 1669). It actually makes sense that  
227 light may be refracted and slowed down for instance in the Milky Way because of clouds of  
228 refractive materials with no similar effect on fast neutrons so that neutrons come *earlier*, hence  
229 linking Type 1a SN1006 with the Mount Baekdu supervolcano in the end of the 10<sup>th</sup> century  
230 (sometimes dated in 946 but with some uncertainty), where the magnitude of a Type 1A supernova  
231 explains the magnitude and quickness of development of the event. It is extremely critical to see  
232 that the 993-994 14C boost (confirming neutron impact) matches perfectly the timeline of that  
233 event. Another more powerful 14C boost in 774 – 775 corresponds with a stellar event noted by  
234 Chinese astronomers as “comet crash” or “thunderstorm” according to Chai & Zou 2015 but which  
235 ought obviously to be another more powerful supernova leading to more powerful super eruptions.  
236 Of course as always it is a precise side of the planet that is blown and thus a cluster of eruptions in a

237 localized area, e.g. one continent, ensue. Spontaneous fission of actinides underground and smaller  
238 novas explain less powerful eruptions.

239

## 240 **4. Nuclear safety revisited**

241

242 The SN1987A-triggered wave of eruptions in the Pacific matches the K431 accident in Vladivostok  
243 area in August 1985. Light from the supernova could easily have been slowed down for a few years  
244 by refractive material. We see the first seismic activity in the Nevado del Ruiz in early September  
245 1985 (yet it can be expected that underground nuclear fission, propped up by supernova neutrons,  
246 takes nevertheless months or years to diverge to above criticality threshold, because molten down  
247 matter will go up, reducing pressure and thus increasing critical mass, every time the natural reactor  
248 accelerates). The K431 nuclear attack submarine was, according to reports, surfacing and in  
249 refueling at the moment of the blast, and hence unshielded from fast neutrons by layers of water. A  
250 bad manipulation in refueling would have officially triggered the supercriticality, nevertheless a  
251 simple melting down of the core could have been expected, yet the supercriticality was explosive. For  
252 that reason, and because it is in the target area for SN1987A and matches the beginning of volcanic  
253 activity in the Nevado del Ruiz, I suggest that fast neutrons coming from SN1987A came on August  
254 10 and destroyed the K431 reactor. K431 was highly likely a fast neutron reactor (with lead bismuth  
255 coolant), which together with its surfacing explains the isolated nature of the event in relation to a  
256 very small supernova in comparison with even Kepler's or Tycho's. The cross section for fission at  
257 very elevated neutron speeds of all actinides including  $^{238}\text{U}$ ,  $^{232}\text{Th}$  are rising due to second-  
258 chance fission, i.e. (n, 2nf), third-chance fission, etc. and giant dipole resonance. Tarrio et al (2011)  
259 allow to suggest that even lead, bismuth will fission at high neutrons speeds and there are certainly  
260 more stable heavy atoms that can fission with even faster neutrons. It is anyway obvious that the

261 impact of a significant neutron wave will result in the destruction of all working nuclear reactors in  
262 a wide area. SN1987A was, compared with Kepler's Star or Tycho's Star, magnitudes less powerful.  
263 Nuclear reactors can be expected to be destroyed by the impact, not simply molten down, and the  
264 catastrophe should happen simultaneously in reactors on a wide area, e.g. continent-wide.  
265 Such waves cannot be predicted. Clouds of dark matter may make it for instance impossible to see  
266 dwarf stars that are in the path of giant red stars, and Type 1A are the most neutron-rich supernovas.  
267 It is impossible to shield completely nuclear reactors but building very large pools of water above  
268 and on top of current nuclear plants could be a partial remedy, yet the structure must be solid  
269 enough to avoid any chance of an explosion bringing flows of water on a molten nuclear core. It is a  
270 good for a bad. The alternative would be to use dihydrogen tanks all around confinement areas, with  
271 the obvious fire risk and the clear target it represents for terrorism, yet that light gas ought not to  
272 enter in contact with the core in case the confinement is broken by a blast and the moderating effect  
273 on neutrons would be much more limited. In future times all new nuclear plants should be built  
274 deep underground and all employees should control the plant from a significant distance, allowing  
275 that any explosion of the plant be solely an underground earthquake without any human casualty  
276 (and the author of the paper campaigns for the generalization of subcritical designs, cooled with  
277 helium, using  $^{238}\text{U}$  and its decay products, i.e. mine tailings, for instance  $^{234}\text{U}$ ). The costs for  
278 building underground plants will be significant, reducing the competitiveness of nuclear energy.  
279 States using nuclear energy for e.g. aircraft carriers should look for alternatives, and the same  
280 comment applies for space missions with onboard nuclear reactors. The massive spreading of such  
281 underground nuclear reactors would still represent a danger in case an extremely powerful  
282 supernova was to happen very close to us, even though this is much less significant and solely  
283 economic if the plants are fully robotized. The use of subcritical technology in combination with its  
284 burying deep underground (one kilometer at least) would allow for an extremely good level of  
285 safety.

## 287 **5. Black holes, their eruptions, the cradle of stars and planets,** 288 **and the explanation for volcano hot spots**

289

290 The “bursts” leading to the formation of stars in “waves” (Beccari et al 2017) can be easily  
291 explained by waves of what I call *black hole eruptions*. Black holes are the obvious place for the  
292 formation of heavy atoms in high volume. It is the sole place where it can be expected that forces  
293 are concentrated enough to conflate particles into i.e. uranium and even heavier atoms. The  
294 accumulation of energy in black holes cannot and never will be infinite even though it is on human  
295 time scales. Planck’s temperature leads to this conclusion and the jets of plasma flowing out of  
296 black holes are already very well known. Findings of proto-stars close to black holes, as noted in  
297 the beginning of this article, and of formation of stars in “bursts” in a nebula known for its black  
298 hole (where another black hole is very likely to be expected right at the center of the “three cities”  
299 of stars), leads to these black hole eruptions, i.e. the rapid propulsion of fresh “blocks” of very  
300 heavy atoms (which can be suggested to be far away from the known end of the periodic table of  
301 elements, even with all experimentally known exotic atoms included ; many of these heavy atoms  
302 can be expected to have super high cross sections for fission and would certainly contribute very  
303 much to the flaring up of whole proto stars (i.e. the beginning of life of stars) if they are part of  
304 islands of stability). Black holes are in a metastable state because of the huge amounts of energy  
305 captured by atoms very far at the end of the Aston curve. It is very easy to suggest that the so-called  
306 Big Bang was solely a massive burst from a super giant black hole that could still be at the center of  
307 the known universe, that the cycle of atoms in space has no beginning and end and that space is  
308 infinite (which is an hypothesis of common sense and can simply be explained by black matter in  
309 the path making it impossible to see too far ; for instance, if the supermassive black hole was in a

310 giant nebula, the energy of the eruption could have pushed away that cloud which would thus be the  
311 main barrier for light from outer systems of stars and black holes).

312 Micro black holes also sit *inside* stars and all planets and explain the volcanic hot spot dynamics as  
313 black hole eruptions of lesser power (these tiny black holes inject “bubbles” of heavy atoms into the  
314 inner core) here explain the occurrence of flood volcanism through the very rapid rejection of  
315 matter that accumulated and fused over millions of years inside these black holes, again as actinides  
316 and possible transactinides prompting a quick chain reaction from the very core of the Earth and  
317 producing the heavy amounts of magma leading to flood basalt provinces.

318 For stars, the hypothesis of a black hole at the center provides the ideal explanation for the black  
319 hole that is found after very powerful supernovas. This black hole is not produced by the supernova.  
320 The very high yield simply means that all atoms fission and that neutrons as well are expelled. The  
321 black hole was already inside before. There is in fact no process explaining rationally the formation  
322 of a black hole. Black holes are part of space, they agglomerate matter (inside, and when too much  
323 elements are attracted onto a too small black hole, the matter coagulates around as in a very strong  
324 bottleneck leading to the formation of a proto star). In a supernova of a lesser yield (or with higher  
325 magnitude of light as there is a lot of energy from fission but few light atoms to fusion, in a young  
326 instable star, leading to a lesser explosive power) the power is not enough to expel many neutrons  
327 that will form such a bottleneck, i.e. neutron star. The progressive attraction of atoms from the inner  
328 core of the object in the black hole leads to the periodic bubbling of heavy atoms. It is a periodic  
329 process. There is, on Earth, a minimal threshold before the beginning of a new hot spot. In stars  
330 where much more elements are agitated continuously and the rhythm of exchanges between the  
331 bottleneck and the black hole is obviously of rates of vast magnitudes above what happens in  
332 planets, the rhythm of eruptions will also be higher, which can be confirmed through the known  
333 phenomenon of eruptive variable stars.

334 As it is obvious that telluric stars simply are very small proto stars which have not received enough  
335 neutrons to become critical, it is also obvious they simply have a black hole of smaller size in their  
336 core and the hot spot processes on Earth and on Mars are an excellent proof for the eruption of these  
337 black holes. Simply, the bottleneck will not be fully stable, the inner core is slowly sucked in the  
338 black hole and when enough matter has been captured for the black hole to go out of its metastable  
339 state, an eruption happens bringing newly formed heavy atoms into the bottleneck, increasing  
340 pressure, producing of course strong nuclear fission supercriticalities and bringing that matter up to  
341 the less dense areas, as the beginning of a hot spot. Indium is a very rare element on Earth that is  
342 found mostly in granitic areas ; this is another proof since granite is linked to hot spot volcanism  
343 that cannot involve big amounts of water (at extreme depths) and indium is not produced in high  
344 amounts when the neutrons are thermalized. Indium is very frequently found together with tin in  
345 granite and tin is also a very unfrequent stable daughter of fission products unless the neutrons are  
346 not thermalized. It demonstrates that nuclear fission happens, in hot spots, at very high depths close  
347 to the “bottleneck area” under the sole high pressure of bubbles of heavy atoms coming  
348 unfrequently from the nano black hole in the center of Earth. “Ice volcanoes” on Pluto are certainly  
349 powered as well by the inner black hole of the sub-brown dwarf star, as the pressure produced by  
350 bubbles of heavy atoms from the black hole clearly produces small chain reactions and concurrent  
351 fusion processes, the produces of which are the lightest part of the magma – hence coming out more  
352 easily.

353 The presence of a “giant ocean” or its remnants in telluric planets (Oceanus Procellarum, the  
354 biggest plane on the Moon, the Pacific Ocean for the Earth, the Northern Lowlands for Mars, and  
355 the very big sea of ice methane on Pluto are excellent examples) is another excellent demonstration  
356 of the existence of a black hole in the center of these planetary objects. When the *outer* parts of the  
357 inside of the black hole are expelled by the eruption of energy accumulated from the supercriticality  
358 in the inner core of the black hole, they escape with the form of portions of a hollow sphere (as with



359 the small incurved portions of an egg broken from the inside by an emerging chick – one can think  
360 of parabolic antennas) the portions all have a small extract of the black hole retained with them in  
361 the inside – so a very brutal and extremely rapid (maybe too fast for the eye) *wrapping event*  
362 happens :

363 1. All the atoms liberated from the black hole expand to take their full space, allowing void to  
364 occupy ~99% of the volume

365 2. So a “slingshot effect” around the small black hole inside the cavity means that the exterior areas  
366 of the piece collide together and a vast number of fissions and fusions happen. It is clearly the event  
367 that will light up the star if powerful enough.

368 In telluric planets, the “giant ocean” is the remain of that fission & fusion event, it is always circular  
369 before continental drift changes too much its shape as on Mercury and Venus where the more acute  
370 neutron flux from the Sun accelerated magmatism, as noted earlier. We can expect the exact same  
371 phenomenon on each planet containing a black hole in its core.

372 Another proof is, for some small satellites, the ridge that is very easy to see, on Iapetus for instance  
373 in the middle of the giant "sea". It proves definitively the "closure event" which is particularly  
374 obvious with the "walnut shape" of Iapetus. These are minor pieces with either a very tiny black  
375 hole inside (so far no volcanism is known on Iapetus but the number of craters suggests there could  
376 be some minor volcanism) or (hypothesis most likely for even smaller objects like Pandora, Pan,  
377 Prometheus, Atlas which have even more the shape of a "flying saucer" and no apparent crater)  
378 none at all. So the black hole from which the small piece was expelled hinders the wrapping event  
379 and the extremities (the "flaps") of the piece (shard) propelled out of the black hole are not perfectly  
380 brought together, there is a ridge that remains because of the exterior attraction forces and lack of  
381 inward attraction forces (a too small black hole inside means that centrifuge forces are dominating  
382 over centripete forces) : the flaps do not swing back around the center perfectly and the pressure at  
383 impact is more limited, explaining the ridge remaining on these objects.

384 Gas giants can be simply seen as star cores which have undergone criticality but were not massive  
385 enough to stay critical. They must come from shards bigger than those leading to telluric planets,  
386 but smaller than those of actual stars. The heavy atoms subsided, gases from ternary fission  
387 products and their interaction with other particles and neutrons such as hydrogen and helium are at  
388 the periphery. More actinides (and, perhaps, transactinides) having fissioned the small solid core  
389 inside each gas giant is likely to be depleted of its heavy elements except for the fact that the black  
390 hole inside the small core is obviously still producing hot spots from its eruptions of actinides and  
391 other heavy atoms.

392 It is simple to suggest that the relatively powerful closure event led to the satellisation of some of  
393 the matter fused at the closure point, a simple way to explain the formation of rings around such  
394 giant gaseous planets. For the Sun, a much more powerful closure event certainly created Kuiper's  
395 Belt.

396 The ridge on Iapetus is covered by light hydrocarbons (Cruikshank et al 2008) and Saturn's rings  
397 are composed mostly of ice water and amorphous carbon (Poulet and Cuzzi 2002) whereas  
398 chondrites are mostly made of silicates and other elements up to iron and nickel, confirming  
399 extremely clearly the more important intensity of the fusion event for a more massive shard leading  
400 to a fully critical star satellising lots of fused matter at the moment of the impact of the closure of  
401 the shard. Yet the fusion happened outside of a black hole and could not overcome the limit set by  
402 the high stability of the iron atom, unlike the processes in black holes described in this paper.

403 The so called metastable state in black holes can be expected to end through slow chain reactions  
404 starting in the very core of the hole ; it can be expected to happen solely with heavy atoms that have  
405 a good cross section for *almost absolutely inert neutrons* – so this should certainly explain the  
406 natural rarity of  $^{235}\text{U}$  as opposed to  $^{238}\text{U}$ , for instance.  $^{235}\text{U}$ ,  $^{239}\text{Pu}$  etc. can be expected to be  
407 produced in vast amounts in black holes ; there is no reason why the random processes of  
408 nucleosynthesis in black holes would give birth to so much  $^{238}\text{U}$  and so few  $^{235}\text{U}$  ; yet if some

409 neutron manages to become a free radical in the compressed “magma” of atoms of the central part  
410 of the black hole, that neutron can be expected to travel *extremely slowly* and subsequent fission  
411 neutrons will also be slowed down almost infinitely by the extremely intense pressure so this  
412 presents a simple basic explanation of the  $^{235}\text{U}/^{238}\text{U}$  ratio found usually on Earth in spite of the  
413 constant regeneration of actinides by the black hole at the center of Earth and subsequent hot spot  
414 geodynamism.

415

## 416 **6. A discussion on gravity forces and the possible graviton**

417

418 It is, lastly, obvious that gravity is only dependent on the presence of a black hole inside stars and  
419 planets, that gravity is a black-hole dependent phenomenon. This is the simple epistemological  
420 conclusion of the research, easily demonstrated with the absence of gravity on comets and asteroids.  
421 It is also inviting for what concerns research on a possible graviton ; the simplest hypothesis in the  
422 view of the author is to envision the graviton as a particle present together with all atoms in matter  
423 outside black holes and attracted by antigravitons produced exclusively in black holes in the  
424 abovementioned nucleosynthesis of heavy atoms, and partially expelled, by supercriticalities, inside  
425 the smaller black holes of the shards ; strong attraction *inbetween antigravitons* in addition to the  
426 mutual attraction of gravitons and antigravitons (whereas of course there is no attraction between  
427 gravitons) is also a simple explanation for the consistency and permanence of black holes ; it could  
428 here be expected that antigravitons turn into gravitons when expelled out of a black hole in the  
429 shards, starting then immediately to be attracted by antigravitons remaining inside, and that  
430 gravitons and antigravitons would disappear to turn into another particle, and/or produce some form  
431 of energy, when joining at the border of the black hole - in this model the black hole is defined *by*  
432 antigravitons and not the reverse. Here antigravitons are the force at work in black holes sustaining

433 the attraction of more matter feeding the nucleosynthesis cycle itself producing more antigravitons.  
434 The model seems to fit but would require more research for confirmation.

435

## 436 **Conclusion**

437

438 A new model has been presented in this paper. Its possibilities are numerous. There is no way  
439 gravitational waves could be predicted, in the future, with full certainty. Computation may lead to  
440 successful experiments yet it is impossible to claim we will have models good enough to ensure  
441 100% confidence in the fact nuclear power plants could be shut down at the exact periods where  
442 neutron impacts have to happen. There will be always a risk, especially because of black matter and  
443 the limits it imposes on space imagery and monitoring. The option quickly drafted in this paper  
444 (deeply buried underground subcritical designs) is much safer for future times to come and would  
445 allow still to use depleted uranium and uranium mine tailings as energy source<sup>2</sup>.

446

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450 *stars.*

451

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## 453 ***Bibliography :***

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<sup>2</sup> As regards coolant the author never supports sodium for obvious reasons of security and would recommend helium for an efficient and extremely safe DU-burner subcritical design

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