Our Redshift Environment
Living On The Edge

by
Robert A. Beatty

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OUR REDSHIFT ENVIRONMENT

Living On The Edge[1]

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Robert A. Beatty BE (Minerals) FAusIMM(CP)
BobBeatty@bosmin.com

ABSTRACT

The paper explores the possibility that several Black Holes (BHs) exist in the Milky Way which results in our Solar System being sited in a gravity low spot relative to our surroundings. The consequence of this siting is that starlight reaching Earth from surrounding galaxies is generally red-shifted in the optical spectrum producing an artefact which resulted in developing The Big Bang theory. If several BHs can be shown to exist, together with their associated Gravispheres, it will imply that the Universe is in a steady state of continuing development with no apparent beginning or end. Presumed BHs are plotted on a chart of the Milky Way which shows they are concentrated in the spiral arm, and central regions, which implies these, are regions of high gravity. Space between the spiral arms therefore constitutes regions of lower gravity.

Keywords:

Gravisphere, Black Hole, Redshift, Hubble, Big Bang, Steady State, Dark Matter, Milky Way, Sagittarius A, V616, Solar System, Inverse Square Law

1) Introduction:

Edwin Hubble first noticed light reaching Earth from distant galaxies was red-shifted [2] which resulted, by reference to the Doppler shift effect, in the conclusion that visible objects in the night sky were travelling away from Earth at great speed. The observation included the fact that more distant objects were red-shifted more than closer ones, so the rate of regression was greater with increasing distance from Earth. This conclusion further led to a back analysis deduction, that the universe must have originated at a single point. The resulting consideration was termed The Big Bang Theory [3] which is generally accepted as the leading theory of universe evolution, today.

However, doubts have been raised concerning the efficacy of the Big Bang theory including:[4]

- *Galaxies are apparently moving apart which conflicts with our understanding of gravitational attraction.*
- *The start point involves elements of time, mass, and energy which are generally incomprehensible.*
- *The concept of "Dark Matter" is inferred to explain astronomical sightings of visible matter, but remains a hypothetical construct.*
- *Our understanding of gravity is quite deficient, yet gravity must represent a critical element for understanding any universe evolution theory.*

2) Milky Way Black Holes:

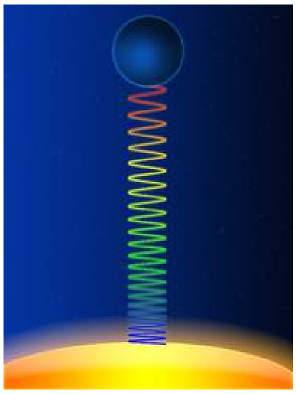
The strongest candidate for a BH in the Milky Way is near the centre which is referred to as "Sagittarius A". BHs are very difficult to identify, because the astronomical anomalies present at such sights can have alternative explanations. However, there are several strong candidates, in the Milky Way.[5]

The following candidates have proven resistant to alternative explanations despite years of study:

- *Cygnus X-1, known since 1964 as the strongest X-ray source in the whole sky. It belongs to a high stellar mass binary system, allowing it's mass to be estimated (at 14–16 solar masses, although there is some disagreement, but all estimates exceed 10 solar masses). Until recently it was the most heavily studied black hole candidate in the Milky Way. It is about 6000 light years away.*
- *A0620-00 (or V616 Monocerotis). Again it's calculated mass of 6.6 solar masses exceeds the black hole threshold. It is the closest black hole to the Sun, but still roughly estimated to be 3300 light years away.*
- *V404 Cygni A compact 9 solar mass object about 8000 lights years away with profound effects on its red giant companion.*
- *Saggitarius A* is assumed to be a black hole because of it's profound effect on the orbits of nearby stars, which zip around it every 10 to 100 years despite having orbits larger than the most distant known objects in the solar system:*
- *There are several other strong stellar mass black hole candidates in the Milky Way, including XTE J1118+480, GRO J1655-40, GRO J0422+32, GRO J1719-24, GS 2000+25, GX 339-4, GRS 1124-68, XTE J1650-500, 4U 1543-475, and V4641 Sagittarii.*

Despite these cautionary words, it will be assumed that numerous BHs do exist within the Milky Way, and by extension to other parts of the universe. The consequences of their presence is analysed in the following paragraphs.

3) Gravitational Influence on Light Photons:
Starlight travelling from a high gravitation region is red-shifted in the optical spectrum, and therefore has a redshift influence on the light reaching Earth.[6]
In this reference we note:



> *In Einstein's general theory of relativity, the gravitational redshift is the phenomenon that clocks in a gravitational field tick slower when observed by a distant observer. More specifically the term refers to the shift of wavelength of a photon to longer wavelength (the red side in an optical spectrum) when observed from a point in a lower gravitational field. In the latter case the 'clock' is the frequency of the photon and a lower frequency is the same as a longer ("redder") wavelength.*
>
> *The gravitational redshift of a light wave as it moves upwards against a gravitational field (produced by the yellow star below). The effect is greatly exaggerated in this diagram.*

4) Gravispheres:
The concept of Gravispheres was introduced in the PROM paper GRAVISPHERES *What's the matter with Dark Matter?*[7] This paper proposed that gravity originates at "black holes" and the centre of gravitational influence on Earth is situated at BH V616 in the constellation of Monoceros. V616 is calculated to be about 3,500 light years from the Solar System, giving the V616 Gravisphere some 7,000 light years of spherical influence at greater than our existing gravitational strength. Earth appears to be surrounded by numerous BHs, which each have an associated gravisphere. This concept is graphically illustrated in Figure 1, with only V616 Gravisphere being representative of the centred BH position relative to our Solar System's shown location. Other Gravispheres are speculative, but represent other centres of possible gravitation development. Gravitation strength is highest near the BHs, and that force of mutual attraction diminishes with distance following the Inverse Square Law.[8]

Gravisphere V616 is drawn with the limit of influence close to the Solar System site. The surrounding Gravispheres are similarly limited in extent to illustrate the same gravitational boundary intensity at those Gravispheres.

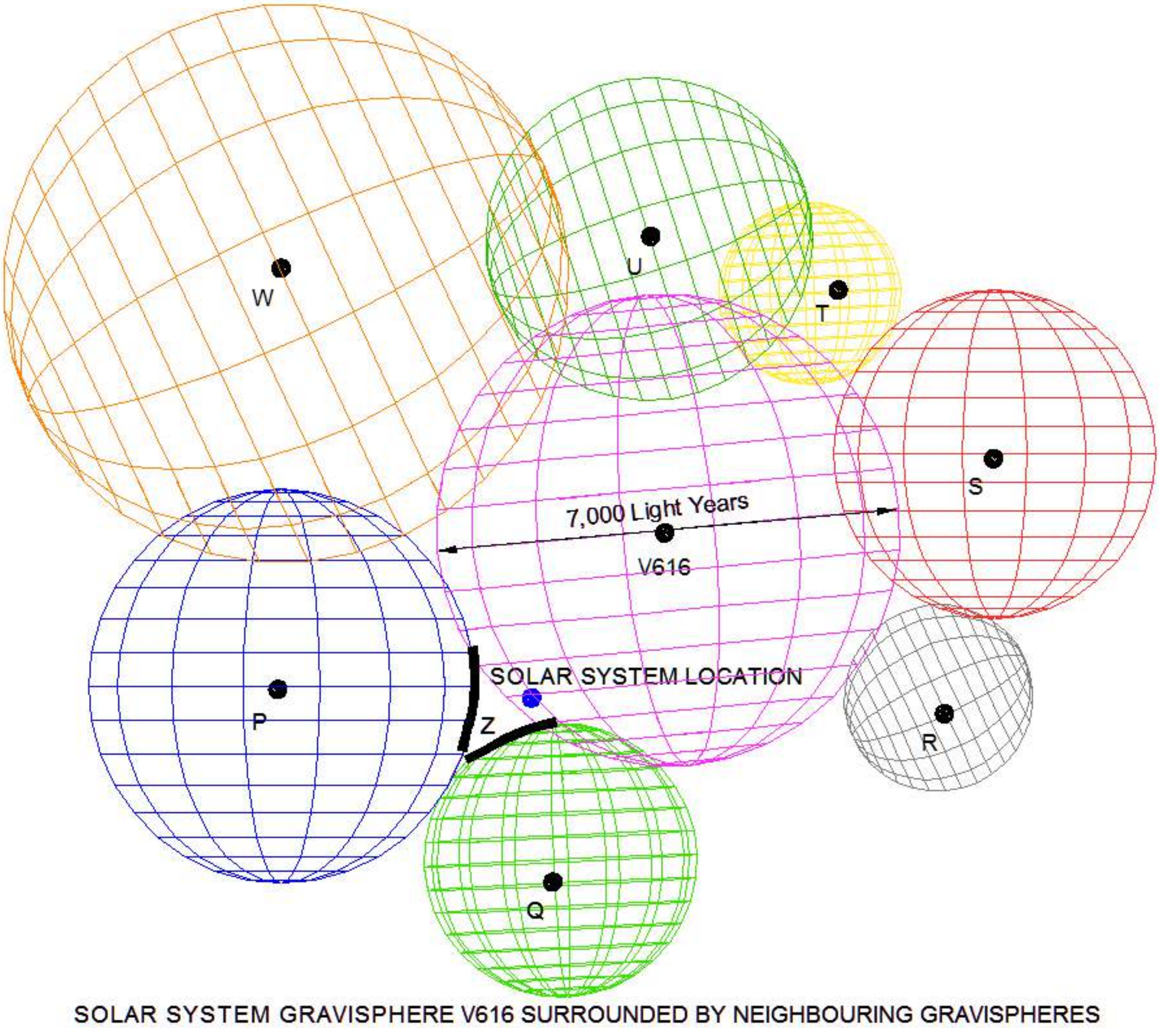


Figure 1.

5) Stellar View From Earth:

It is apparent that most of the starlight reaching Earth will have travelled through one of several, neighbouring Gravispheres where the gravitational force would be higher than at our Solar System location. This shows that our Solar System, sited on the edge of Gravisphere V616 is in a gravity low spot, relative to most of the surrounding regions of the universe. Figure 1 includes speculative Gravispheres P, Q, R, S, T, U, and W which emit starlight from a higher gravitation state than the Solar System. Light from these galaxies reports as red-shifted when viewed from Earth.

However, the zone indicated by Z is a nearby region where galaxies can emit starlight from a lower gravitational strength than at the Solar System. These galaxies report as blue-shifted when viewed from Earth as reported:

> *There are in all about 100 known galaxies with blueshifts out of the billions of galaxies in the observable universe. Most of these blue-shifted galaxies are in our own local group, and are all bound to each other.*[9]

And:

Andromeda is not the only galaxy to be moving towards us. With the help of galaxy surveys, astronomers have found that around 100 galaxies are moving towards us. Compared to the numbers of galaxies that we know of (hundreds of billions), blue-shifted galaxies are seemingly quite rare. Those that are moving towards us are either part of our Local Group, which means that we are gravitationally connected to each other, or they are found in the Virgo Cluster which everything in our Local Group is moving towards. The galaxies M90, M86 and M98 are all in the Virgo Cluster and all show blue shifts.[10]

6) Anticipated Black Hole Locations.

Report *Big Bang or is it just Steady State?*[4]*, October 2015, "Figure 12 Stellar Masses considered as potential Black Holes in Earth's region of the Milky Way Galaxy*", graphically presented the anticipated BHs. An updated Table 1. is now available:[11]

#	Distance Light-years (±err)	Distance kiloparsecs (±err)	Designation		Stellar class	Epoch J2000.0		Solar mass (Sun = 1)	Discovery date[1]	Notes and additional references	
			System	Component		Right ascension[2]	Declination[2]			System	Component
1	3000	0.858	A0620-00 (V616 Mon)	A	BH	06h 22m 44.503s[3]	−00° 20′ 44.72″[3]	11.0 ± 1.9	1917	binary star system orbit t = 7.75 hr	Black hole candidate
				B	K[4]			0.5 ± 0.3			—
2	6000 ±375[5]	1.86 ± 0.12[5]	Cygnus X-1 (Cyg X-1)	Cyg X-1	BH	19h 58m 21.67595s[6]	+35° 12′ 05.7783″[6]	15 ± 1	April-May 1971	binary star system orbit t = 5.6 d	—
				HDE 226868	O[7]			30 ± 10			—
3	7800 ± 460	2.39±0.14	V404 Cygni	A	BH	20h 24m 03.83s[8]	+33° 52′ 02.2″[8]	9	22 May 1989	binary star system orbit t = 6.5 d	The first black hole to have an accurate parallax measurement for its distance from our solar system
				B	K[2]			0.7			early K giant star
4	8100 ±1000	2.49 ± 0.30	GRO J0422+32	A	BH	04h 21m 42.723s	+32° 54′ 26.94″	3.97 ± 0.95	5 August 1992	binary star system orbit t = 5.09 hr	May be a massive neutron star
				B	M1			0.5 ± 0.1			
5	11 100 ± 700	3.4 ± 0.2	Cygnus X-3	Cyg X-3	BH	20h 32m 25.766s	+40° 57′ 28.26″	15 ± 5	1967	binary star system orbit t = 4.8 hr	
				V1521 Cyg	WN			30^{+15}_{-50}			One of the most luminous stars in the galaxy
6	11 900 ± 3600	3.7 ± 1.1	GRO J1655-40	A	BH	16h 54m 00.137s	−39° 50′ 44.90″	5.31 ± 0.07	1994	binary star system orbit t = 2.6 d	
				V1033 Sco	F5IV			1.9 ± 0.3			
7	25 600 ± 600	7.86 ±0.2	Sagittarius A*		BH	17h 45m 40.0409s	−29° 0′ 28.118″	4.1 million	1974	supermassive	Center of galaxy
8	29 700 ±2700	9.1 ± 0.8	4U 1543-475	A	BH	15h 47m 08.277s	−47° 40′ 10.28″	9.4 ± 2.0	1971	binary star system orbit t = 26.8 hr	Estimated 7.5 ± 1.0 kpc away before Gaia
				B	A2V			2.7 ± 1.0			

Table 1.

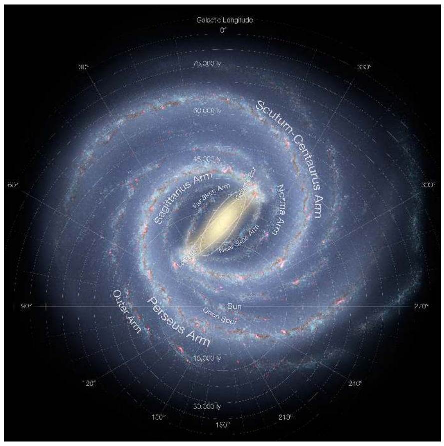
This list contains all known black holes relatively near the Solar System (within our Milky Way galaxy).

The list of major BH sightings appears as a growing list, currently available at,[12] where 129 candidates are listed.

This report considers the distribution of BHs within the Milky Way, but anticipates that similar distributions are representative of other galaxies.

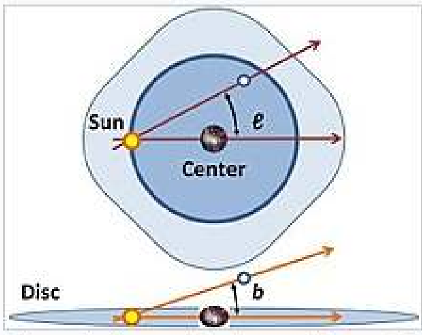
7) Milky Way Coordinates.[13]

The galactic coordinate system is a celestial coordinate system in spherical coordinates, with the Sun as its center, the primary direction aligned with the approximate center of the Milky Way galaxy, and the fundamental plane parallel to an approximation of the galactic plane but offset to its north. It uses the right-handed convention, meaning that coordinates are positive toward the north and toward the east in the fundamental plane.



Galactic longitude

The galactic coordinates use the Sun as the origin. Galactic longitude (l) is measured with primary direction from the Sun to the center of the galaxy in the galactic plane, while the galactic latitude (b) measures the angle of the object above the galactic plane.



The galactic coordinates use the Sun as the origin. Galactic longitude (l) is measured with primary direction from the Sun to the center of the galaxy in the galactic plane, while the galactic latitude (b) measures the angle of the object above the galactic plane.

Longitude (symbol l) measures the angular distance of an object eastward along the galactic equator from the galactic center. Analogous to terrestrial longitude, galactic longitude is usually measured in degrees (°).

Galactic latitude

Latitude (symbol b) measures the angle of an object north or south of the galactic equator (or midplane) as viewed from Earth; positive to the north, negative to the south. For example, the north galactic pole has a latitude of +90°. Analogous to terrestrial latitude, galactic latitude is usually measured in degrees (°).

Other stellar coordinate systems can be easily converted using NASA's HEARARC.[14]

8) Milky Way Black Holes.

The BHs listed in Table 1. are plotted on the Milky Way diagram Figure 2.[15] using galactic coordinates shown in Table 2. Other Milky Way BHs are included in Table 2. from reference.[5] Where light year distance is not available, reference to the constellation is used.

Black Hole	Epoch J2000		Galactic		Distance/ Constellation
	Right Ascention	Declanation	L	B	Light Years
V616	06h 22m 44.503s	-00° 20' 44.72"	209 57 22.7	-06 32 23.6	3,000
Cyg X-1	19h 58m 21.67595s	+35° 12' 05.7783"	71 20 06.0	03 04 00.6	6,000
V404 Cygni	20h 24m 03.83s	+33° 52' 02.2"	73 07 07.8	-02 05 29.2	7,800
GRO J0422+32	04h 21m 42.723s	+32° 54' 26.94"	165 52 50.4	-11 54 45.8	8,100
Cygnus X-3	20h 32m 25.766s	+40° 57' 28.26"	79 50 43.9	00 42 00.5	11,100
GRO J1655-40	16h 54m 00.14s	-39° 50' 44.9"	344 58 54.8	02 27 21.5	11,900
Sagittarius A*	17h 45m 40.04s	-29° 00' 28.2"	359 56 39.2	-00 02 46.2	25,600
4U 1543-475	15h 47m 08.28s	-47° 40' 10.3"	330 55 04.4	05 25 34.6	29,700
XTE J1118+480	11h 18m 10.79s	48° 02' 12.3"	157 39 39.6	62 19 13.8	Ursa Major
GRO J1719-24	17h 19m 36.93s	-25° 01' 03.4"	00 08 32.3	06 59 26.9	8,500
GS 2000+25	20h 02m 49.58s	25° 14' 11.3"	63 21 59.7	-02 59 56.1	8800-2300
GX 339-4	17h 02m 49.38s	-48° 47' 23.2"	338 56 20.8	-04 19 35.3	Ara
GRS 1124-68	11h 26m 26.59s	-68° 40' 32.9"	295 18 01.5	-07 04 21.8	Musca
XTE J1650-500	16h 50m 00.98s	-49° 57' 43.6"	336 43 05.8	-03 25 37.4	Ara
V4641 Sagittarii	18h 19m 21.63s	-25° 24' 25.8"	06 46 26.2	-04 47 20.7	Sagittarious

Table 2.

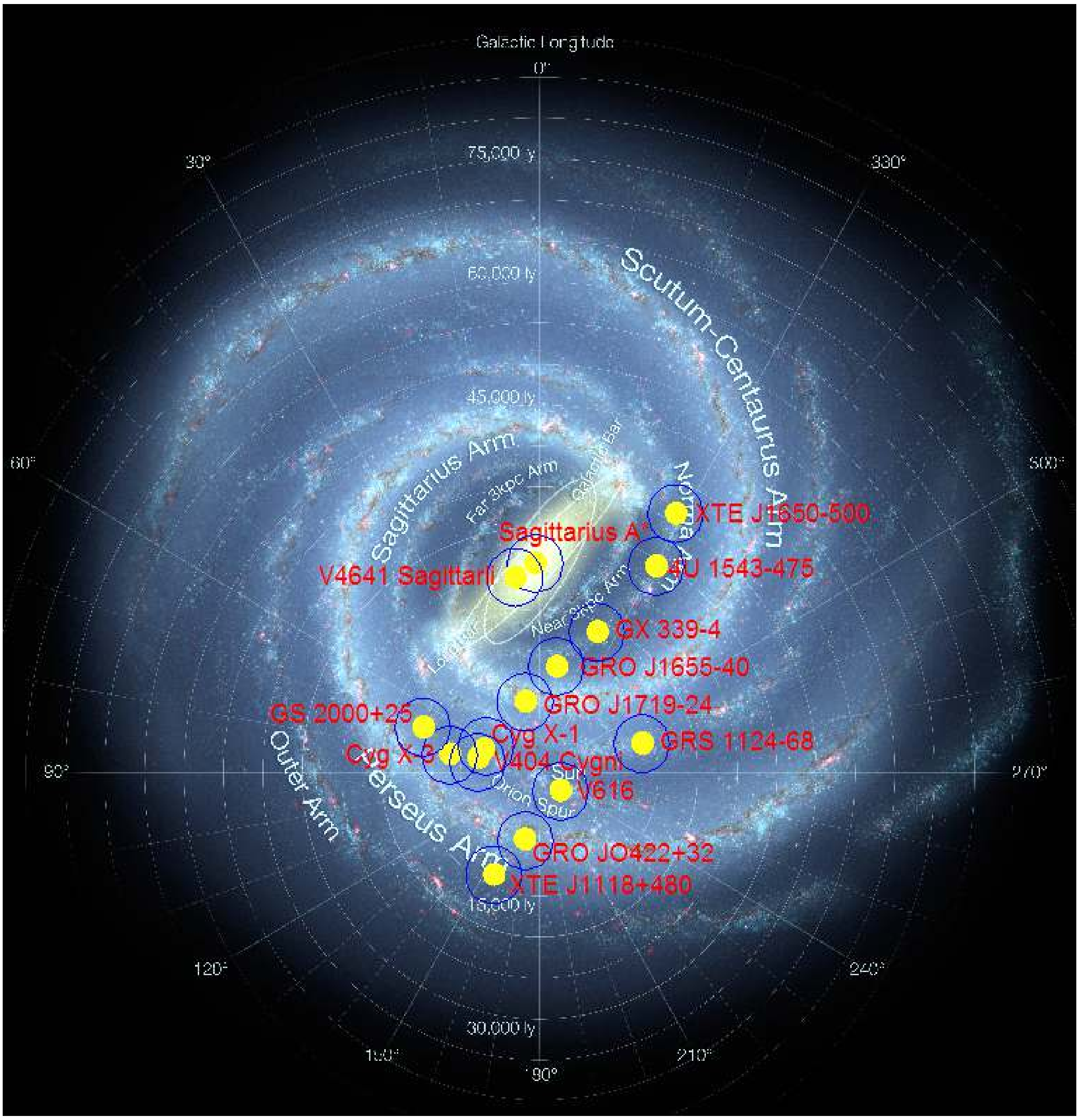


Figure 2.

The blue circles in Figure 2. represent the Earth strength limit of gravitational attraction surrounding each BH. The logic employed here says the upper limit of gravitational strength occurs at the BH boundary where the outer electrons can be stripped from incoming atoms, due to the force of gravity being stronger than the force of electronic bonding. The BH value for G was previously calculated [16] to be G = 6.693 × 10^28 m3 kg-1 s-2 while on Earth it is 6.693 x 10^-11 m3 kg-1 s-2. This results in matter being disassembled as it is consumed by the BH. No higher force of gravity is required to operate a BH, but the mass of a BH does increase with the addition of digested matter including neutrons, in particular.

It is interesting to note the BHs plot on the spiral arms, which suggests the spiral arms stay connected through gravitational attraction between Gravispheres as suggested in reference.[17] BHs are anticipated to exist at regular intervals along spiral arms.

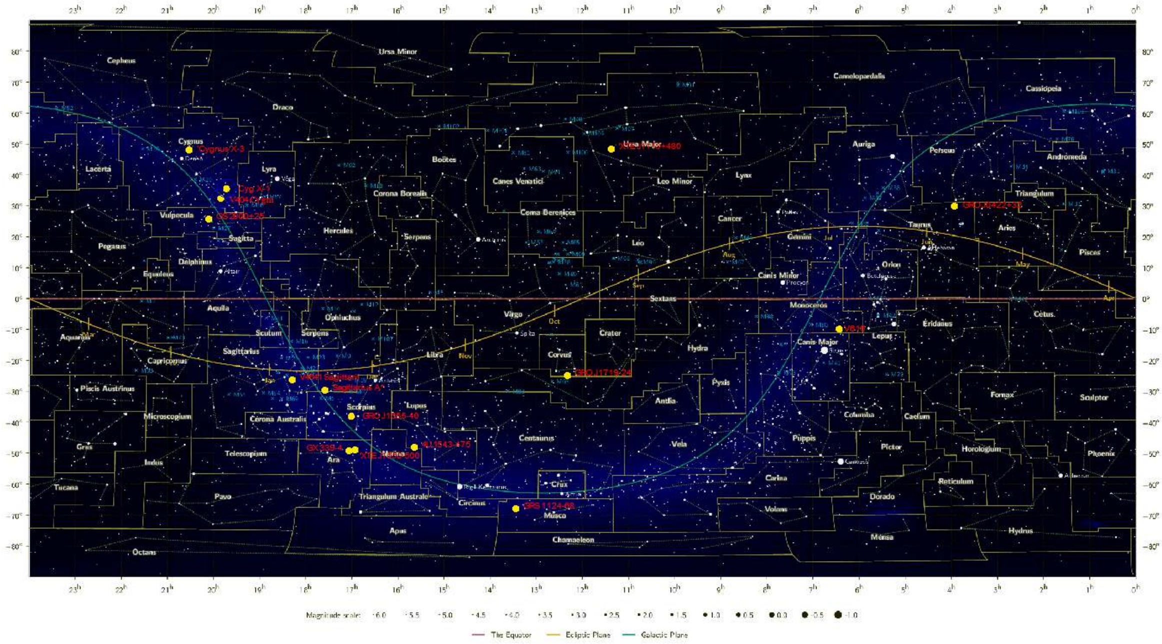


Figure 3.

Figure 3.[18] shows the elevation BHs have relative to the plane of the Milky Way. Figure 2 shows some BHs appear to overlap, however when plotted in elevation shown in Figure 3, separation becomes evident.

9. Conclusions:

1. The redshift observation which led to the Big Bang Theory may be an artefact of our Solar System location where gravity is at a low ebb, relative to the broader universe.
2. The concept of Gravispheres offers a new view on the source of gravity. It implies that gravity is not constant throughout the universe, and that gravitational variations are pervasive and lead to red and blue shifts in the starlight viewed from Earth.
3. Blue-shifted star light may not be conclusively indicative that a galaxy is moving towards the Milky Way anymore than redshift indicates receding travel. Additional Information:
4. BHs are concentrated in the arms of the Milky Way together with their zones of high gravity. The spaces between the arms are void of BH and are regions of low gravity.
5. The spiral arms stay connected through gravitational attraction between associated Gravispheres.
6. The variability of gravity in a spiral galaxy precludes the need for a consideration of "dark matter".
7. BHs are anticipated to exist at regular intervals along spiral arms.

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