

## Used Freon Influential against Balance Life at the Earth

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### ABSTRACT

*One of material that have considered as source pollution at the atmosphere there are Freon, as Chloro-fluoro Carbon (CFC), or as Hydro Chloro-fluoro Carbon (HCFC). This CFC could do process photo condensation with radiation ultra violet that high energy at stratosphere and the next would reaction with ozone.*

**Keywords:** Earth degradation, Pollution, Cancer, Atmosphere, Photosynthesis

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### INTRODUCTION

Empty ozone event at atmosphere caused radiation ultraviolet that from sun have not held at the atmosphere but through to the earth, affected against life at the earth that has caused cancer diseases, happened from secondary material pollution as photochemical smog and heated earth that added cause at the quality life of the earth degradation (Figure 1). Nevertheless, special for HCFC there are that not damaged ozone, although at the atmosphere could make from green house caused [1].

#### Atmosphere

Atmosphere is a layer blanketing equi amplitude surface of earth divided to troposphere, stratosphere, mesosphere and thermosphere. Layer troposphere (ozone layer) consisted gathering of gas and there are two numbers gas types big that is: oxygen gas ( $O_2$ ) counted 20,95%, Nitrogen ( $N_2$ ) 78,08%, the numbers medium that is: Argon counted 0,934%, carbon dioxide ( $CO_2$ ) 0,035%, vapor ( $H_2O$ ) 0,1-5%, medium of other gas (including inert gas besides Argon) there is in number traces ( $<10^{-3}\%$ ). Stratosphere layer only be consisted of ozone gas ( $O_3$ ), mesosphere radical Ozone and Nitrogen Oxide, medium of layer thermosphere consisted of ozone radical, oxygen and oxide nitrogen.

Atmosphere has many inter as utilities: Be source of carbondioxide (useful for fotosintesa plant) and oxygen (for exhalation of mortal), also sebgai important component in hydrology cycle (condenser), canopy for mortal (permeates absorbent infrared ray by the sun and transmitted again by earth) [2] (Figure 2).

#### Photosynthesis

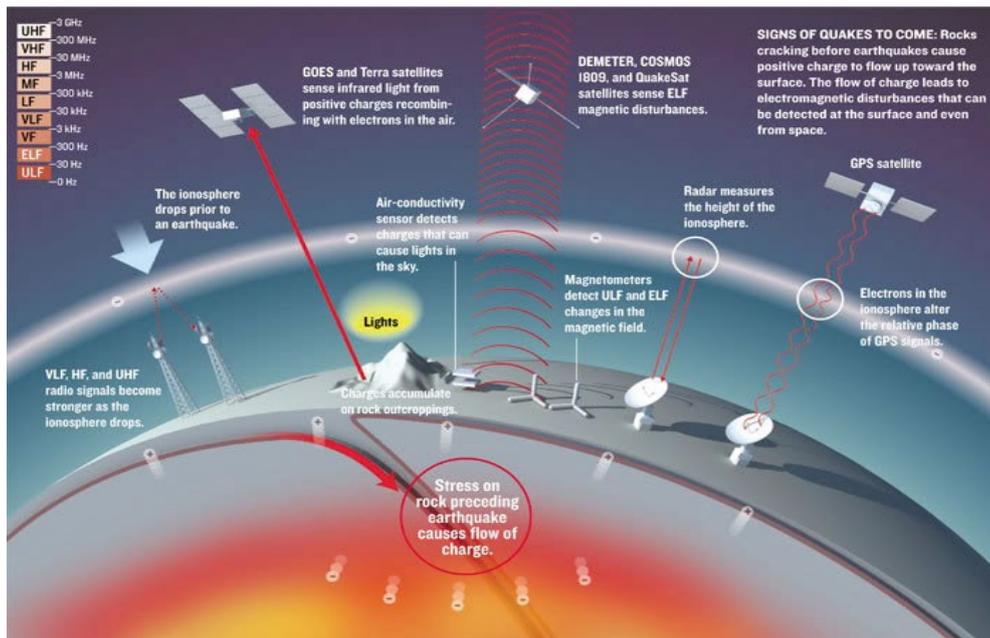
Photosynthesis is usually done by plant containing leaf green matter (chlorophyll), algae and some bacterium types. Photosynthesis is a way of carbon assimilation because in carbon photosynthesis free of  $CO_2$  is bound (fixation) becomes sugar for dissociation energy of diatomic reservoir molecule. Other way done by organism in carbon assimilation is through chemosynthesis that is usually done by sulfur bacterium (Figure 3).

At equi amplitude surface of the temperature soil, land, earth around  $15^\circ C$ , at elevation of the 15 km temperature reduces to  $-56^\circ C$ , 50 km rising temperature returns until  $-2^\circ C$ , 85 km. Temperature went down again until  $-92^\circ C$ , hereinafter at above elevation is 85 km temperature returns to increasing so that at elevation of 500 km from equi amplitude surface of the temperature ground reaching  $1200^\circ C$  (Figure 4).

District troposphere has derivation characteristic of temperature with increasing of elevation, because distance from radiation of ground increases, at temperature stratosphere district then increases as result of existence of permeable ozone of ultraviolet radiation. In district mesosphere temperature returns to decline because the lessen of permeable



**Figure 1:** Earth degradation



**Figure 2:** Atmosphere

material of radiation coming from the sun, medium at district thermosphere the temperature returns to increasing because in this district happens absorption process of radiation having gumption height so that the temperature can be reach 1200°C. Figure condition of atmosphere as explained to be visible above at above Figures 1 and 2 [3].

Besides correlation between temperatures, atmospheric pressure and elevation from sea level can be formulated with equation of continuity following:

$$P_h = P_0 e^{-Mgh/RT}$$

Where  $P_0$  it is atmospheric pressure at elevation of zero (sea level/surface sea water),  $M$  is molecule weight average of atmosphere (28.97 g/mol at troposphere),  $g$  is gravitation (981 cm det<sup>-2</sup>),  $h$  it is elevation (cm), and  $R$  is gas constant ( $8,314 \times 10^7$  erg det<sup>-1</sup> mol<sup>-1</sup>).

If equation of continuity above logarithm and by assuming pressure at sea surface equal to 1 atm is obtained by equation of continuity:

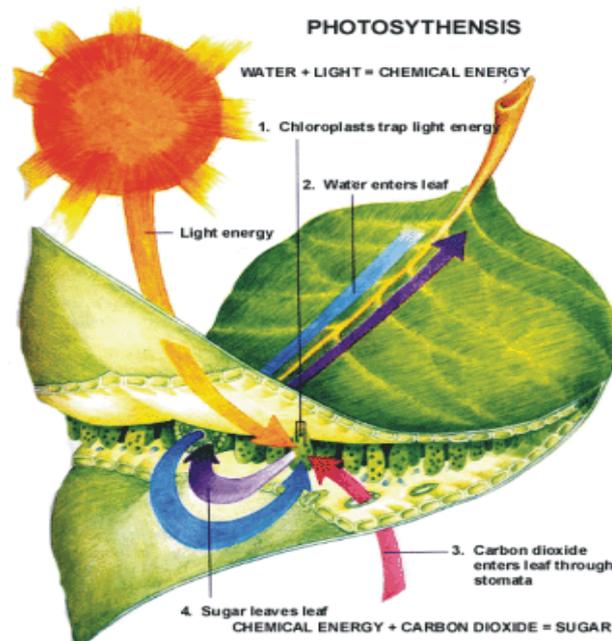


Figure 3: Photosynthesis

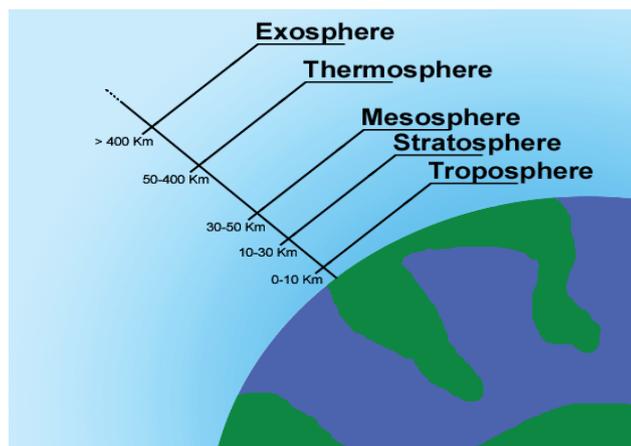


Figure 4: Division of atmosphere

$$\text{Log}P_h = \frac{Mgh \cdot 10^5}{2,303RT} \tag{1}$$

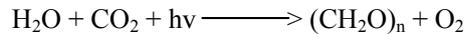
With grooving between logarithms  $P_h$ , temperature to elevation, visible Figure 5. From Figure 5 seen that at elevation around 15 km Atmosphere temperature comes near  $-60^\circ\text{C}$ , 50 km becomes  $-2^\circ\text{C}$ , 85 km equal  $-92^\circ\text{C}$  and hereinafter temperature increases again. However atmospheric pressure is more and more low if distance from earth is more and more far.

**Geothermic equilibrium**

Solar energy which up to earth atmosphere  $1340 \text{ Watt/m}^2$  and some of this dissociation energy of diatomic permeated on the way to equi amplitude surface of earth by atmosphere, cloud and by the particle in atmosphere so that reaching equi amplitude surface of the dissociation energy of diatomic earth only  $636 \text{ Watt/m}^2$ . Dissociation energy of diatomic which up to equi amplitude surface of this earth partly are bounced again to atmosphere in the form of infrared temperature and radiation to balance temperature in earth.

Equi amplitude surface temperature of earth taken care of shifts  $15^\circ\text{C}$  caused by vapor and gas  $\text{CO}_2$  where permeable  $\text{CO}_2$  of radiation which in transmitting by earth and hereinafter he radiation some of earth equi amplitude surfaces. If this thing is not happened equi amplitude surface temperature of earth will become  $-18^\circ\text{C}$ . Equi amplitude surface temperature of earth will go up when grade  $\text{CO}_2$  in atmosphere increases and this in mentioning greenhouse effect.

This thing might possibly happened caused by baking activity of increasing forest fuel, so that equilibrium of CO<sub>2</sub> in atmosphere annoyed and reaction of photosynthesis in earth decreases.

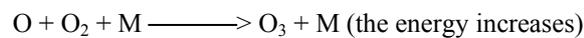


Besides, ozone in atmosphere is also temperature ballast in ground because ozone stands permeates ultraviolet radiation stepping into atmosphere at wavelength 220-330 nm based on reaction:



If this ultraviolet radiation not in permeated hence temperature which up to equi amplitude surface of earth around 1000°C and if this happened hence difficult there are life in this earth. Ultraviolet (light/ray) which up to earth can cause the happening of skin neoplastic disease and in also on the way towards to earth can generate pollution of secondary in the form of photochemical smog in Troposphere (Figure 6).

That equilibrium of ozone remains to happen O<sub>2</sub> and free O in atmosphere must be enough and required also other molecule like N<sub>2</sub> and O<sub>2</sub> which can function to permeate excess of energy reaction of formation of ozone



Oxygen there is at atmosphere, lithosphere, hydrosphere and biosphere as seen at Figures 4 and 5 and oxygen at district troposphere plays a part important in process of happened in grounds, especially at process happened atmosphere, orthogonal transformation geochemistry and in process of life. Permeable oxygen atom of visible light at wavelength 636, 630 and 538 nm and herein after yields oxygen ion and electron transmitting radiation electromagnet especially at infrared spectrum district.



The atom and ion and oxygen molecule in atmosphere can react with other molecule like N<sub>2</sub>, NO<sub>x</sub>, H<sub>2</sub>S<sub>2</sub>, SO<sub>x</sub>, ClO, hydrocarbon compound, etc.

Compound Chlorofluorocarbon, for example: Dichlorodifluoromethane, commonly named by Freon a is volatile. This non-toxic and stable compound and some last decades exploited as coolant. Some compounds produced on a large scale inter as CCl<sub>3</sub>F (CFC – 11, bp 24°C), CCl<sub>2</sub>F<sub>2</sub> (CFC – 12, bp -28°C) C<sub>2</sub>Cl<sub>3</sub>F<sub>3</sub> (CFC – 113), C<sub>2</sub>Cl<sub>2</sub>F<sub>4</sub> (CFC – 114) dan C<sub>2</sub>ClF<sub>5</sub> (CFC – 115).

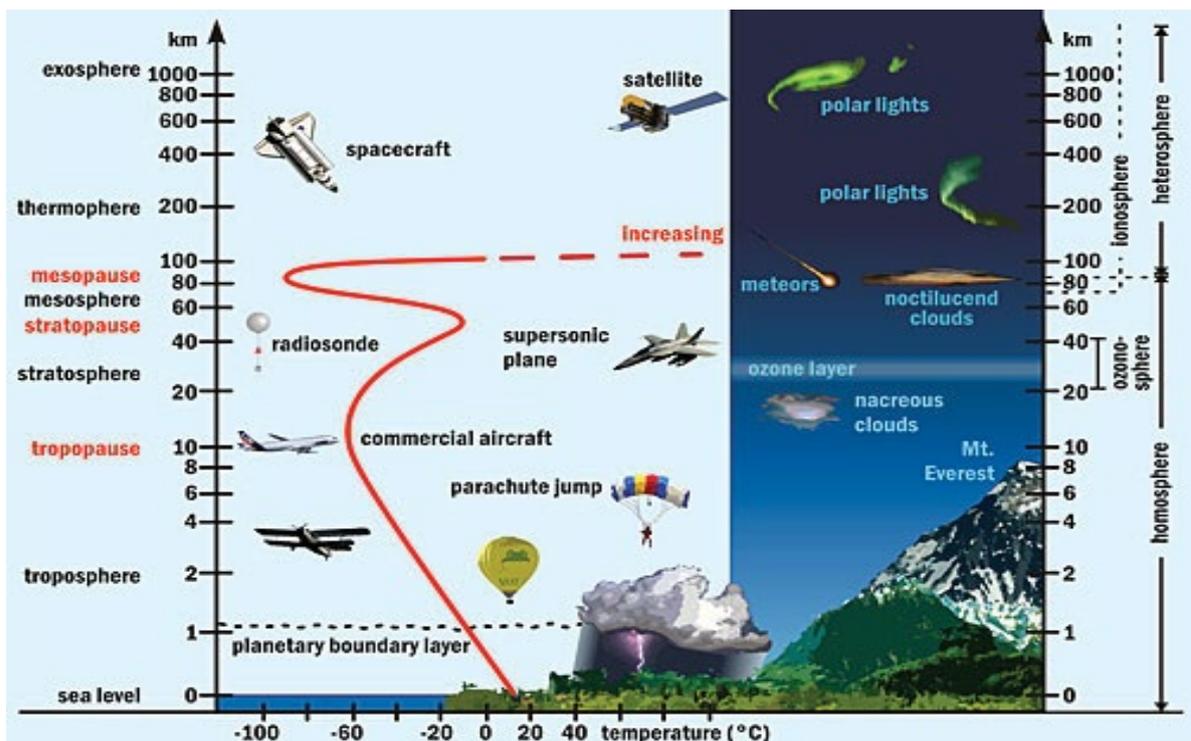


Figure 5: Relation between pressure and temperature to elevation

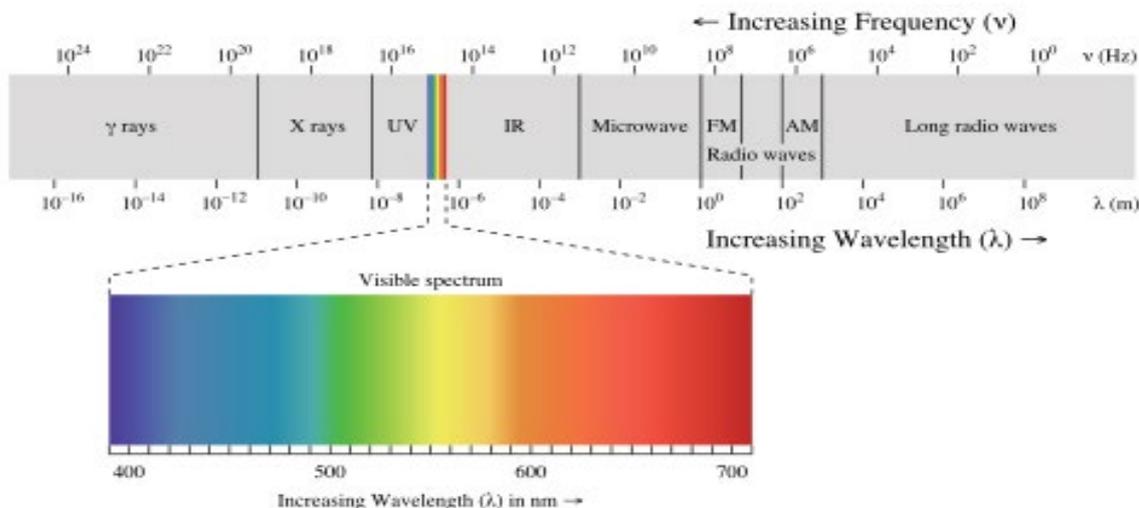
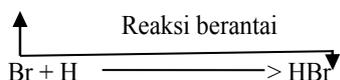
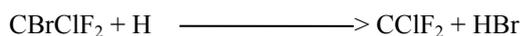


Figure 6: Wavelength frequency

Halon is the same compound and contains bromine and in general is applied as component of fire company. Compound halon which has been commercialized, for example  $\text{CBrF}_3$  (Halon - 1301) and  $\text{C}_2\text{Br}_2\text{F}_4$  (Halon - 2402). This very effective compound stops fire because breaking hydrogenic atom cause of burning, based on reaction of following:



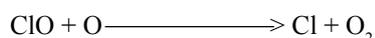
Because in character which can break ozone layer has usage of this halon limited. Besides in the form of halofluorocarbon, has been made integer in the form of the hydrogen compound as Hydrochlorofluorocarbon (HCFC) and Hydro fluorocarbon (HFC) like  $\text{CH}_2\text{FCF}_2$  (HFC - usual 134a mixed at CFC - 12 at equipments of coolant from carriage and refrigerator),  $\text{CHCl}_2\text{CF}_3$  ( HCFC - 123 generally is mixed with CFC - 11 needs of plastic foam blowing),  $\text{CH}_3\text{CCL}_2\text{F}$  (HCFC - 141b, also is mixture CFC - 11 for plastic foam food container), Also commonly use HCFC - 124 ( $\text{CHClFCF}_3$ ), HCFC - 142b ( $\text{CH}_3\text{CCLF}_2$ ) and HFC - 152a ( $\text{CH}_3\text{CHF}_2$ ).

CFC although has property that is reactive not, but because has been produced is mass that is one half a million  $\text{m}^3$  per year and later in the year 1974 compounds chlorofluoromethane earns breaks ozone layer in stratosphere, hence since then started looked for substitution material of friendly other coolant of area. Although in this case producer CFC - 12 by US-EFA until the year 1995 looking for other alternative of substitution CFC.

Why Freon is assumed by dangerous in process of ruining of ozone is because in reacting its entangling reaction to relate to where one molecule CFC can destroy many ozone molecules beyond reaction of photode composition following:



Radical Color formed will react with ozone to yield radical ClO and hereinafter this radical reacts with free oxygen atom yielded from result of resolution of ozone is stratosphere by base reaction of following:



Besides radical ClO earns also reacts with the nitrogen oxide in atmosphere yields radical color and this radical hereinafter will react with ozone in relates to.





Compound CFC has lifetime at stratosphere layer in order hundreds of year and because the reaction property relates to this causes incidence of aperture in ozone recognized by the name "Antarctic Ozone Hole". Compound hydrofluorocarbon (HFC) and hydrochlorofluorocarbon (HCFC) there is also doesn't endanger ozone layer like: HFC - 134a,  $\text{CF}_3\text{CH}_2\text{F}$ , because although reacted with hydroxyl radical however the reaction only takes place at district troposphere:



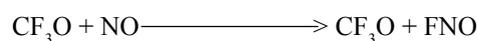
Radical formed at above reaction will react with oxygen to yield peroxide radical and hereinafter will react with oxide nitrogen then decomposes forming radical  $\text{CF}_3$ , where the reaction takes place as follows:



Or reacts with oxygen molecule yielding radical percosil:



Other reaction that is formation of radical CFO is earning also reacts with ozone in relates to, but the reaction the end when this radical meets with nitrogen oxide and or methane gas.



Radical  $\text{CF}_3$  is not met in stratosphere layer to show HFC and HCFC something still can be exploited as coolant and or aerosol.

Special for compound Perfluorocarbon (PFC) like Carbontetrafluoride ( $\text{CF}_4$ ) and Hexafluoroethane ( $\text{C}_2\text{F}_6$ ) be compound having the character of non-toxic, doesn't react with hydroxyl radical, the other ozone and substance in atmosphere. But this compound earned as its cause hot improvement in earth because earning permeable of infrared radiation ably some thousand bigger times compared to with carbon dioxide.

Performance of compound reacts with ozone hardly determined by molecular weight, number of atoms hydrogen, color and it's (the fluor is and potential deflection (PD) to ozone. Between compound CFC and HCFC which can destroy ozone layer is CFC - 11 (PD 1,0), HCFC - 22 (PD 0,030), HCFC - 123 (PD 0,013), HCFC - 141b (PD 0,10), HCFC - 124 (PD 0,035) dan HCFC - 142B (PD 0,038) [4].

More and more low potential value of its deflection, lifetime radical yielded by CFC or HCFC at layer troposphere dwarf, so that has fallen to pieces at layer troposphere before migration to stratosphere layer.

## CONCLUSION

Compound that is most dominance destroys ozone layer is all types CFC and HCFC which is not contained  $\text{CF}_3$ . Alternative which is usable permanent from compound fluorocarbon is HCFC is containing  $\text{CF}_3$  and perfluorocarbon (PFC). 1 molecule=224 L (Ozone).

Our earth is indium clean and lapped over is regular, only deed of human being so that impure. Because Freon rest of from workshop that is not accommodated, because wishing quickly is discharged into the air free which is very dangerous Freon for human life, so that we try writes thing like this. We urge to all men to earn consciousness about this very dangerous Freon.

Earth has experienced transformation of big area like height of Concentration greenhouse gas because man activity that it is said can generate transformation of climate, like height of content CFCs in atmosphere destroying ozone layer. Where also happened area damage, like forest damage, erosion, annihilate various floral species and fauna. In

forest area Indonesia degradation has reached wide 59.17 Ha, while area of stall is outside by forest area is noted with a width of 41.47 Ha, this data taken up to the year 2004. Environmental damage is caused by increase of resident that is not controlled and incommensurate to improvement of quality or performance in managing these natural resources. Beside damage of area which caused by man hand, also happened damage naturally or event of nature there is in the universe.

Because generally environmental damage happened as result of man hand who is irresponsible, therefore to improve; repair damage of area which already happened, and lessen and prevents damage which can happened, hence early on man is given by education of environment like: what interaction with nature, knows cause and as result of area damage, teaches form of activities to preserve nature. Besides man as governor is earth by this. Hence claimed also to protect and preserve earth that the benefit is always can awake. According to newest research pickings concludes, that intellectual development happened very fast in the early of child life.

At the age of four years a child forms 50% intelligence which will be owned it after adult, 30% again at the age of eight years and 20% the rest at mid of final a decay second, therefore perceivable when age four first years in development of child of conceived of golden age [5]. Mean at the age of the child of starting taught by education of environment in the form of knowledge and understanding to nature area, to ecosystem and awareness conservation of nature. Learning man springs up and grows from experience that is first of all obtaining of through family life together with parent fellow. Hence as a stripper this will supply the child requiring spiritual and understanding of adequate area [6]. Parent is learning first for his own children, teaches environmental education like protecting and preserve its area, comprehends cause and effect of environmental damage happened like its breakdown is environmental around forest, ozone layer, flora and fauna. Parent also place of questioning for the children, answers given and old caring to the child is yesterday, today and tomorrow determines to the future of ground which has experienced damage. Then who is old that very stands for education of child? Mother.

At present modern age, function of family as place of education, takes care of and takes care of child to start shifting because the increasing of old especially mother working outdoors [7]. Besides, not all old fellows now have good understanding to area, and awareness to comprehend education of environment to the child. Hence joining child in its environment is a real much the knowledge to child.

God said (Greek logos) "logos" means life uniting the universe. The blade, harmonious of season, the stars in the sky is in the form of perfect because of logos. Philosopher Heracleitus, Plutarch, Philo and Pluto and so it is with the philosophers "Stoic" writes thing which about "logos".

What makes everlasting life promises is important is, although all make look life in this earth died, but only man which can understand thinking of everlasting life. Only man us which can understand difference between brief lives in this earth and expectation of everlasting life in coming. And we also can understand how death to earn at any times snatches us because stuffing up vein, a drunken power steering or virus HIV which never last.

What a respects it expectation which we have, understands that death is not end of anything; but, that only when sleep for just momentary for us and happened the next of we know that we would together with Jesus forever and ever.

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