

Duhugurane: Ku Kwezi hahishe iki gikomeje gutera Ibihugu by'ibihangange kumaranira kujyayo

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Icyogajuru Chandrayaan-3 cy'Ubuhinde kimazeyo iminsi kimaze kohereza ibintu bishya kandi bitangaje ku mpera y'epfo y'Ukwezi. Ibihugu bya Amerika, Ubushinwa n'Uburusiya nabyo birimo gutegura kujyayo, mbese ubundi ni iki kiriyo kidasanzwe?

Ni ahantu ikintu cyose cya muntu kitari bwakagere mbere. Mu cyumweru gishize, nibwo ikinyamitende bise Pragyaaan kingana n'ivalisi cyasohotse mu cyuma bise Vikram cyururukiye hafi y'impera y'epfo y'Ukwezi, gitangira gukora ubushakashatsi aho hantu hadasanzwe.

Ubu nibwo butumwa bwa mbere – butarimo umuntu – bwururutse neza muri ako gace k'imikoki n'imiterere yihariye ku mpera y'Ukwezi. Mu gihe ubutumwa bwa za Apollo bwo mu myaka ya 1960 na 70 bwo bwururukiraga hafi ya koma (equateur) y'Ukwezi, ubu butumwa bwa Chandrayaan-3 bw'Ubuhinde bwo bwururukiye muri 600km uvuye ku izingiro ry'impera y'epfo y'Ukwezi, nta kindi kigendajuru kiragera no hafi aho.

Cyahageze hashize iminsi ibiri gusa icy'Uburusiya, Lunar-25, kigerageje kuhururukira ariko cyihonda hasi kirashwanyuka. Ubu butumwa bw'Ubuhinde butangije urugamba rwo kugira ngo n'abantu bazakandagize ibirenge aha hantu mu mpera z'iyi myaka 10.

Simeon Barber, umuhanga muri siyanse y'imibumbe wo muri The Open University yo mu Bwongereza ati: "Ibi birimo kuba ni ibintu bitangaje."

Uretse Ubuhinde n'Uburusiya, Ubushinwa na Amerika nabyo amaso yabyo biyerekeje kuri iyi mpera y'epfo y'Ukwezi. Aho bifuza guperereza ku mayobera y'Ukwezi ndetse yenda no gukoresha ibyo bavanayo.

Ariko se ni iki mu by'ukuri iyo mpera y'epfo y'Ukwezi ihishe gituma hakurura cyane aba banyamatsiko, abahanga, n'ibihugu by'ibihangange?

Ubutumwa bwa Chandrayaan-3 n'ikinyamitende cyabwo Pragmaan bimaze kohereza ibimenyetso bidasanzwe by'ahantu h'imiterereyihariye ubu kiri. Iki kinyamitende kigenda 1cm ku isegonda ku butaka bw'umukungugu n'imikoki, kimaze kugenda metero nyinshi uvuye kuri cya cyuma cyururutse (Vikram) cyasohotse.

Mu kugenda gishinga utwumvirizo (sensors) twacyo mu butaka bwo ku kwezi, kiriya kinyamitende cyatangaje ikinyuranyo giteye amatsiko cy'ubushyuhe ku butaka no munsu yabwo. Hejuru ku butaka cyapimye ubushyuhe bwa 50C, ariko munsu gato muri 80mm gusa kihapima ubushyuhe bwa -10C – ikinyuranyo "cyatunguye" abahanga muri siyanse.

Ibipimo by'ibinyabutabire gikoresha nabyo byamaze kwerekana ko muri ubu butaka bwa hano hantu hari ibinyabutabire bya sulphur, aluminium, calcium iron, titanium, manganese, chromium na oxygen.

Ibi byombi bimaze kuboneka birereka impamvu abahanga muri siyanse bifuza cyane gusobanukirwa n'aka gace k'impera y'epfo y'Ukwezi.

Ukwezi kwikaragira (rotation) ku murongo uberamye wa degere 1.5 gusa, mu gihe isi yikaragira ku wa degere 23.5, ibi bisobanura impamvu ibice bimwe by'imikoki kuri iyo mpera y'Ukwezi bitajya na rimwe bibona urumuri rw'izuba. Kongeraho rero ubukonje bw'aho hantu, abahanga muri siyanse batekereza ko ibi bituma hari urubura, rwinshi rugizwe n'amazi, ruvanze n'ubutaka, cyangwa se ruri hejuru ku butaka.

Hari icyizere ko urwo rubura rushobora gukoreshwa n'ahanga mu isanzure mu buvumbuzi bw'igihe kizaza. Saumitra Mukherjee umwalimu w'imiterere y'ubutaka muri Jawaharlal Nehru University i New Delhi mu Buhinde ati: "Ni ahantu hihariye. Kuba hari amazi ni ibintu by'ingenzi cyane."

Ikimenyetso ntakuka ko hari urubura ku Kwezi kiva mu byabonywe n'ikigo NASA mu Ukwakira (10) 2009 ubwo ku ikigendajuru kirimo ubusa bakigongeshaga ku bushake kuri iyi mpera y'epfo y'Ukwezi. "Mu byatarutse harimo ibimenyetso by'amazi", nk'uko bivugwa na Margaret Landis umushakashatsi ku mibumbe wo muri University of Colorado muri Amerika. Yongeraho ati: "Aha niho twabonye neza urubura rw'amazi ku Kwezi."

Andi makuru (data) yerekanye ahantu hamwe na hamwe hari ukugaruka k'urumuri (reflection) kuri izo mpera, bishoboka cyane ko ari ukubera urubura, mu gihe ingano nini ya hydrogen yabonetse kuri izo mpera nayo yaba ari ingaruka y'urubura rw'amazi.

Umwaka ushize, umuhanga muri siyanse William Reach w'ikigo Ames Research Center cya NASA kiri i California yohereje mu ndege indebakure (telescope) yitwa Sophia kwiga Ukwezi, yabonye ibimenyetso bya hydrogen "hirya gato" y'ahari ubu icyuma Vikram cy'ubutumwa bwa Chandrayaan-3 n'ikinyamitende cyabwo.

Ibi byabonwe vuba aha by'amazi y'urubura byazamuye amatsiko mashya yo gushakashaka ku Kwezi, by'umwihariko ku mpera y'Epfo.

Icyuma cy'Ubuhande cyaguyeyo n'ikinyamitende cyacyo ubu bizafasha abahanga muri siyanse "kumenya neza noneho ukuri kw'ibivugwa n'abashakashatsi ku kwezi ku mazi ari mu butaka bwaho", nk'uko bivugwa na Aanchal Sharma wahoze ari enjeniyeri mu kigo Indian Space Research Organisation (ISRO), ubu ukora muri University of Trento, mu Butaliyani.

Mu gihe amakuru atangwa n'ubutumwa bwa Chandrayaan-3 azaba

ingenzi, ubutumwa buzagenda nyuma bukagwa neza neza ku mpera y'epfo y'Ukwezi nibwo abahanga bategereje cyane. Hano, hari imikoki izwi nk'ahantu hahora iteka mu mwijima. Rimwe na rimwe hitwa "imikoki y'icuraburindi iteka", aha hateye mu buryo imirasire y'izuba itajya na rimwe ihagera, bivuze ko hashobora kuba habunze urubura rumaze imyaka za miliyari.

Impera y'epfo ifite imikoki n'imihora myinshi kurusha iya ruguru, bishoboka cyane ko ari ukubera ibibuye bya za meteorite byinshi byaguye ku butaka bwaho, ibituma iyi mpera y'epfo irushaho gutera amatsiko.

Ibipimo by'ubushyuye muri kariya gace gahora iteka mu mwijima bishobora kumanuka kugera kuri -200°C , ibituma haba ahantu h'ingenzi gushakira urubura. Ikinyamitende cya NASA biteganyijwe ko kizajyayo mu 2024 kiswa Viper, kizagenda muri bimwe muri ibi bice bitabona by'Ukwezi, kizaba gifite amatara yo kumurika aha hantu ngo cyerekane amabanga yaho. Ubu butumwa bushobora kuzatugaragariza neza ibiriyo byose mu by'ukuri, nk'uko bivugwa na Dan Andrews umukuru w'umushinga wa Viper wo mu kigo Ames Research Center cya NASA.

Gusa Viper ishobora kutazaba ari ubutumwa bwa mbere bugeze hariya hantu h'icuraburindi. Ubundi butumwa buzabanza bwiswe Micro-Nova hooper, bwa kompanyi yo muri Amerika yitwa Intuitive Machines, bushobora koherezwa ku kwezi mu ntangiriro za 2024. Nubwo butazaba bufite ibikoresho nk'ibya Viper, nk'ibyo gucukura ku butaka, buzabasha kugera aha hantu hijimye cyane butange ishusho ya mbere y'uko hameze.

Gusa nanone ubu sibwo butumwa bwonyine bugamije impera y'epfo y'Ukwezi. Ubundi butumwa bw'Ubuhande, bufatanyije n'Ubuyapani, bwiswe Chandrayaan-4, nabwo buzerekezayo, mu gihe Ubushinwa nabwo bufite iyo gahunda, kandi n'Uburusiya buzongera bukagerageza.

Amazi y'urubura niyo arimo gukurura aya matsiko yose. Niba ariyo ku bwinshi kandi aboneka, ashobora kuba ikintu

cy'ingenzi ku gutuza abantu ku Kwezi, hamwe no gushakashaka kurushaho mu nyenyeri zigaragiye izuba. Niba urwo rubura rushobora gukurwa aho rwavanwamo hydrogen na oxygen, ibintu by'ingenzi bigize ibitoro by'ibyogajuru cyangwa kandi isoko y'amazi yo kunywa n'umwuka wa oxygen watuma abantu bahatura.

Kevin Cannon, umwalimu w'imiterere y'ubutaka muri Colorado School of Mines muri Amerika ati: "Uburyo bworoshye bwo kubibona ni ugucukura ubutaka bw'urubura bugashyirwa mu kintu cy'ifuru bugashongeshwa. Aho hava ibitoro bihagije by'ibyogajuru byahaguruka aho bikoherezwa kure cyane kurushaho mu isanzure."

Izi nzozu zo kujya kure cyane kurushaho mu isanzure no gutura ku kwezi ziri hafi kurusha uko umuntu yabyibaza. Mu 2025 NASA irateganya kujyana abantu ku Kwezi mu kigendajuru cya SpaceX ku nshuro ya mbere mu gice cy'ikinyejana gishize, mu butumwa bise Artemis III. Bazagwa mu gace ubu kataragenwa k'impera y'epfo y'Ukwezi maze bwa mbere bahite bakoresha urubura rwaho.

Jacob Bleacher, umukuru w'ubushakashatsi muri NASA ati: "Intego nkuru z'ubwo butumwa ni ukwiga kugera no gukorera mu bice by'impera". Bitewe n'imiterere y'urubura ruzaba rwavumbuwe kuri icyo mpera y'epfo n'ubutumwa buzabanza nka Viper, abazajyayo bashobora kuzitwaza ibikoresho byo kuzana ingano runaka yarwo ku isi. Ubutumwa bw'ahazaza bundi bwa Artemis bushobora bwo kuzareba uko rwakoreshwa na muntu. "Ni intambwe z'uruhererekane" nk'uko Bleacher abivuga.

Ibindi bintu byakoreshwa nk'ubutare n'amabuye y'agaciro bishobora kuba biri ku Kwezi nabyo bizacukurwa bikoreshwe n'abo bahanga bazajyayo mu kubaka ibikorwaremezo byatuma abantu babasha kubayo.

Hari impamvu nyinshi za siyanse zituma hakenewe ubushakashatsi ku mpera y'epfo y'Ukwezi. Abahanga barifuza cyane kumenya inkomoko y'amazi ku Kwezi, ashobora kuba yaravuye mu iruka ry'ibirunga byaho mu myaka za miliyari ishize, yaravuye se mu

bibuye bya asteroids na comets, cyangwa se yarajyanywe n'umuyaga. Landis ati: "Igiteye amatsiko cyane ku mazi yo ku Kwezi ni ukumenya uburyo imibumbe y'ibitare gusa ibona amazi, ari nabyo by'ingenzi cyane mu kumenya niba haturwa. Kumva uburyo Ukwezi kwabonye amazi byatubwira byinshi ku Isi n'indi mibumbe y'ibitare iri mu isanzure."

Brett Denevi, umuhanga mu by'imibumbe muri Johns Hopkins University Applied Physics Laboratory muri Amerika, uherutse gutoranywa ngo ayobore itsinda ryiga imiterere y'ubutaka ku mushinga wa Artemis III, nawe avuga ko imiterere y'impera y'epfo ari imwe mu ishaje cyane ku Kwezi, kandi nta bimenyetso yerekana bya vuba by'iruka ry'ibirunga. Madamu Deveni ati: "Ibyo bitanga uburyo bwiza bwo kureba mu bindi byabaye mbere cyane ku mibumbe igaragiye izuba bitabonwe ku Isi."

Itsinda rya Denevi rirashaka kumva amwe mu mayobera yo ku Kwezi, nk'impamvu impera zayo zifite ibitare byinshi kurusha ibindi bice hamwe n'ubwoko bw'inyanja ya magma (amazuku) isa n'aho igihe kimwe yigeze kuba yuzuye ku butaka bw'Ukwezi.

Ati: "Mu by'ukuri turacyafite ibibazo byinshi by'ibanze ku Kwezi".

Chandrayaan-3 ishobora kuba gusa ari itangiriro ryo gusubiza ibi bibazo, ndetse no gutura no gukorera ku Kwezi.

Bleacher ati: "Tugiye ku kwezi kwiga uko abantu baba ku yindi mibumbe igaragiye izuba no kubaka ubundi buryo bwo gushakisha mu isanzure. Kandi tuzabasha kumenya amateka y'imibumbe igaragiye izuba.

"Iyi mu by'ukuri niyo ntambwe ikurikiyeho ya muntu." (BBC)

