

COMET CHASER COSTS RISE

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The postponement of the audacious Rosetta mission to chase down and land on a comet has put a 70-million-euro (£50m) hole in the European space budget for this year. Officials must now juggle their funds to pay for a new flight for the probe early in 2004. Rosetta is currently being stored in a "clean" facility at the Kourou spaceport in French Guiana. Scientists have confirmed they want to send the spacecraft to Comet 67P/Churyumov-Gerasimenko now that the original target, Comet Wirtanen, is no longer reachable in the desired timeframe. The opportunity to go to Wirtanen was lost when all European rockets were grounded following an accident at Kourou in December. The new quarry will require some slight modifications to the lander craft and the way scientists plan to get it on to the surface of the icy body.

'Worth doing'

Rosetta, a flagship mission for European space science that has been more than 10 years in development, has already cost in the region of a billion euros (£700m). Now, Professor David Southwood, the European Space Agency's (Esa) director of science, says he has the headache of finding the extra funds to prepare Rosetta for a second launch attempt.

"I have a small funding crisis right now - nothing serious," he told BBC News Online. "I will have to sign the contracts soon to prepare the spacecraft and I will need to borrow forward some money from succeeding years.

"But we're in pretty good shape. We have all the technical clearances we need - we have a new target, everybody believes it's a safe target and everybody thinks it is scientifically worth doing."

Rosetta is a remarkable mission. The probe will pursue the comet at breakneck speed and then attempt to put a lander on its surface - a first. The complex series of space manoeuvres required in getting the probe in the right place and with a high enough speed to tag the comet means the outward part of the journey will take the best part of a decade.

Stiffer legs

A detailed assessment of Churyumov-Gerasimenko has been undertaken by researchers to determine whether the body is a suitable target for Rosetta. And last week, based on that assessment, senior Esa scientists formally approved the proposal to modify the mission to go after the new comet. Its greater mass than Wirtanen - it is just under two kilometres wide compared with Wirtanen's 0.6-km diameter - will mean the lander's legs will need to be stiffened to withstand the impact. Scientists think they can also change the way they approach the comet to reduce the speed with which the lander has to touch down. Dr Ian Wright, from the UK's Open University and a lander scientist, said: "I think people have now convinced themselves that it's all entirely doable, provided the density of the target is not above a certain amount.

"There is still some nervousness about the exact measurement, but it's a bit of a Catch-22 - one of the reasons we're going to a comet is to understand what the density of these objects is.

chaser	lovec, stíhač
cost	stát (o ceně)
rise	vzrůst
postponement	odklad
audacious	odvážný, smělý
land	přistát
hole	díra
budget	rozpočet
official	úředník
juggle	žonglovat
fund	fond, rezerva
pay	platit
flight	let
probe	sonda
currently	v součas. době
clean facility	„čistá hala“
confirm	potvrdit
target	cíl
reachable	dosažitelný
desired	požadovaný
timeframe	časový rámec
opportunity	příležitost
be grounded	ztroskotat
accident	nehoda
quarry	kořist
slight	drobný
way	způsob
surface	povrch
worth	cena, hodnota
flagship	vlajková loď
development	vývoj
already	již
billion	miliarda
headache	boleň hlavy
launch	start
attempt	pokus
crisis	krize
serious	vážný
sign	podepsat
contract	smlouva
borrow	vypůjčit si
succeeding	následující
good shape	„dobrá forma“
pursue	sledovat, stíhat
breakneck	krkolomný
complex	komplikovaný
series	řada
required	nutný
enough	dostatečně
tag	připojit (se k)
outward	vnější
take	zabere
best part	největší část
decade	desetiletí
stiff	tuhý, tvrdý
leg	noha, nástavec
assessment	odhad, stanovení
undertake	vykonat, provést
determine	určit, zjistit
whether	zdali, jestli
suitable	vhodný
approve	schválit
proposal	návrh
go after	„jít za (něčím)“
just under	těsně pod
wide	široký
compare	porovnat
withstand	odolat, vydržet
impact	náraz
approach	přiblížit se
reduce	snížit
touch down	přistát

"This comet is also more active than Wirtanen and scientifically that' s more interesting. From a mission risk point of view, that does give you more to worry about - but I' m confident we' ll get down and do some good science."

Full tank

The mission' s problems began in December last year when Europe' s new super rocket, a beefed-up version of the Ariane 5, exploded over the Atlantic on its maiden flight. Although Rosetta was scheduled to fly on a standard version of the launcher, the post-accident investigation ordered a thorough review of systems on all the rocket variants. The delay while this was carried out pushed Rosetta beyond the launch window necessary to get it into position to catch Wirtanen. Preparation for a February 2004 blast-off from Kourou will probably begin around September/October. Most of the Rosetta spacecraft is still in its launch-ready state - it still has its fuel on board.

"Corrosion takes place when you expose something to oxygen so it may be the fuel is best left in the spacecraft - that' s our view at the moment," Professor Southwood said.

"The Americans defuelled the Galileo spacecraft and ended up having to purchase a new tank because of corrosion."

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