1
00:00:11,990 --> 00:00:05,900
this special aeronautics and space

2
00:00:16,849 --> 00:00:12,000
report brought to you by NASA Mariner

3
00:00:22,400 --> 00:00:16,859
maps entire Martian surface pioneer

4
00:00:27,800 --> 00:00:22,410
halfway to Jupiter surveying our earth's

5
00:00:32,420 --> 00:00:27,810
resources new advances in aeronautics

6
00:00:36,889 --> 00:00:32,430
and the last two Apollo flights to the

7
00:00:52,299 --> 00:00:36,899
moon 1972 a year of significant

8
00:00:57,380 --> 00:00:55,399
the mysterious red planet Mars is not

9
00:01:00,490 --> 00:00:57,390
nearly as puzzling as it used to be

10
00:01:03,859 --> 00:01:00,500
thanks to this spacecraft Mariner 9

11
00:01:06,469 --> 00:01:03,869
Mariner 9 orbited Mars continuously for

12
00:01:09,260 --> 00:01:06,479
more than half a Martian year probing

13
00:01:11,810 --> 00:01:09,270

sensing and photographing as the seasons

14
00:01:14,779 --> 00:01:11,820
changed below these are some of the

15
00:01:16,730 --> 00:01:14,789
things we've learned Mars has been

16
00:01:19,040 --> 00:01:16,740
geologically active with volcanic

17
00:01:21,410 --> 00:01:19,050
mountains there are indications that

18
00:01:24,070 --> 00:01:21,420
free flowing water may have existed

19
00:01:27,080 --> 00:01:24,080
sometime in past Martian history

20
00:01:30,169 --> 00:01:27,090
observed from above were huge impact

21
00:01:32,330 --> 00:01:30,179
craters and windblown dunes the more

22
00:01:34,669 --> 00:01:32,340
than seven thousand pictures returned by

23
00:01:37,399 --> 00:01:34,679
Mariner have enabled scientists to map

24
00:01:40,130 --> 00:01:37,409
the entire Martian surface and pinpoint

25
00:01:47,719 --> 00:01:40,140
landing sites for the unmanned Vikings

26
00:01:52,950 --> 00:01:50,550
Jupiter a thousand times larger than

27
00:01:55,620 --> 00:01:52,960
Earth distinguished by glowing yellow

28
00:01:57,870 --> 00:01:55,630
orange and blue gray stripes it appears

29
00:02:00,810 --> 00:01:57,880
to have its own internal energy source

30
00:02:03,899 --> 00:02:00,820
and is so massive that it is almost a

31
00:02:08,520 --> 00:02:03,909
small star we launched a spacecraft

32
00:02:10,889 --> 00:02:08,530
toward Jupiter called pioneer 10 it's

33
00:02:12,600 --> 00:02:10,899
still a quarter of a billion miles away

34
00:02:16,490 --> 00:02:12,610
from this largest planet in our solar

35
00:02:20,040 --> 00:02:16,500
system as it flies by jupiter in late

36
00:02:21,809 --> 00:02:20,050
1973 its cameras and sensors will return

37
00:02:27,380 --> 00:02:21,819
the first pictures and data ever

38
00:02:32,849 --> 00:02:30,179

this is what the orbiting astronomical

39
00:02:35,030 --> 00:02:32,859
observatory named Copernicus looked like

40
00:02:37,319 --> 00:02:35,040
before it was launched last August

41
00:02:39,809 --> 00:02:37,329
equipped with sensitive precision

42
00:02:42,449 --> 00:02:39,819
instruments including a 32 inch diameter

43
00:02:44,910 --> 00:02:42,459
telescope this heaviest of our unmanned

44
00:02:46,380 --> 00:02:44,920
spacecraft is studying stars and

45
00:02:49,940 --> 00:02:46,390
galaxies to gain a better understanding

46
00:02:52,199 --> 00:02:49,950
of how they evolve and eventually die

47
00:02:54,839 --> 00:02:52,209
now in orbit above the Earth's

48
00:02:57,539 --> 00:02:54,849
distorting atmosphere Copernicus has a

49
00:02:59,759 --> 00:02:57,549
clear view of the stars and is returning

50
00:03:06,659 --> 00:02:59,769
important new information to astronomers

51
00:03:09,089 --> 00:03:06,669
every day in cooperation with the

52
00:03:12,839 --> 00:03:09,099
Italian government NASA orbited another

53
00:03:14,970 --> 00:03:12,849
in the Explorer series of spacecraft the

54
00:03:17,159 --> 00:03:14,980
small astronomy satellite was launched

55
00:03:19,319 --> 00:03:17,169
from a platform in the Indian Ocean to

56
00:03:26,460 --> 00:03:19,329
study Earth's Sun interactions and

57
00:03:30,820 --> 00:03:29,050
84 sounding rockets were launched from

58
00:03:33,310 --> 00:03:30,830
NASA's Wallops Island stationed in

59
00:03:35,380 --> 00:03:33,320
virginia and other sites with payloads

60
00:03:38,020 --> 00:03:35,390
to study phenomena affecting the Earth's

61
00:03:40,660 --> 00:03:38,030
atmosphere these small relatively

62
00:03:43,210 --> 00:03:40,670
inexpensive rockets are telling us a lot

63
00:03:47,850 --> 00:03:43,220

about near-earth space below the region

64
00:03:52,920 --> 00:03:51,180
a comprehensive program to study and

65
00:03:56,160 --> 00:03:52,930
make better use of our earth's resources

66
00:03:58,110 --> 00:03:56,170
is in full swing high altitude planes

67
00:04:00,780 --> 00:03:58,120
and the new earth resources technology

68
00:04:03,120 --> 00:04:00,790
satellite are returning thousands of

69
00:04:05,040 --> 00:04:03,130
high quality pictures of the earth as a

70
00:04:08,330 --> 00:04:05,050
result scientists hope to better

71
00:04:14,670 --> 00:04:08,340
understand our planet its forests crops

72
00:04:16,170 --> 00:04:14,680
geology and pollution a new Nimbus

73
00:04:18,240 --> 00:04:16,180
research and development weather

74
00:04:20,130 --> 00:04:18,250
satellite is taking the first vertical

75
00:04:22,860 --> 00:04:20,140
temperature readings from space through

76
00:04:24,990 --> 00:04:22,870
clouds it is also monitoring a

77
00:04:26,659 --> 00:04:25,000
mysterious disappearing current off the

78
00:04:29,520 --> 00:04:26,669
west coast of South America and

79
00:04:31,590 --> 00:04:29,530
thermally mapping the Earth's surface so

80
00:04:38,820 --> 00:04:31,600
geologists can better understand what's

81
00:04:40,680 --> 00:04:38,830
happening below the crust to commercial

82
00:04:42,210 --> 00:04:40,690
communication satellites were launched

83
00:04:45,000 --> 00:04:42,220
for the communication satellite

84
00:04:47,370 --> 00:04:45,010
corporation adding new telephone and

85
00:04:49,200 --> 00:04:47,380
television channels both crafts become

86
00:04:56,670 --> 00:04:49,210
part of the global communications

87
00:04:59,159 --> 00:04:56,680
satellite network the a in NASA's stands

88
00:05:01,920 --> 00:04:59,169

for Aeronautics with a wide range of

89
00:05:03,840 --> 00:05:01,930
projects underway for example this

90
00:05:05,700 --> 00:05:03,850
airplane is equipped with a digital

91
00:05:07,530 --> 00:05:05,710
computer that was developed for the

92
00:05:10,409 --> 00:05:07,540
flight control system of the Apollo

93
00:05:12,570 --> 00:05:10,419
lunar lander its use in planes of the

94
00:05:17,790 --> 00:05:12,580
future should make air travel smoother

95
00:05:22,749 --> 00:05:20,619
many aeronautical problems are studied

96
00:05:25,869 --> 00:05:22,759
in massive wind tunnels without having

97
00:05:28,360 --> 00:05:25,879
to test full-sized planes engineers can

98
00:05:30,999 --> 00:05:28,370
for instance test a tale or wing section

99
00:05:33,189 --> 00:05:31,009
to destruction knowing in advance where

100
00:05:35,379 --> 00:05:33,199
structural weaknesses are makes it

101
00:05:41,999 --> 00:05:35,389
possible to design out many problems

102
00:05:46,929 --> 00:05:44,290
to help relieve airport congestion

103
00:05:49,329 --> 00:05:46,939
NASA's test flying short takeoff and

104
00:05:51,459 --> 00:05:49,339
landing planes like this one stole

105
00:05:53,409 --> 00:05:51,469
planes as they are called need very

106
00:05:55,809 --> 00:05:53,419
little runway to either take off or land

107
00:05:57,579 --> 00:05:55,819
and may play an important role in

108
00:06:05,110 --> 00:05:57,589
providing convenient short haul

109
00:06:07,239 --> 00:06:05,120
intercity transportation research is

110
00:06:09,790 --> 00:06:07,249
continuing to make presently operating

111
00:06:12,550 --> 00:06:09,800
commercial jet aircraft engines quieter

112
00:06:16,360 --> 00:06:12,560
and also to develop the technology for a

113
00:06:18,610 --> 00:06:16,370

new quieter engine less noisy takeoff

114
00:06:21,219 --> 00:06:18,620
and landing procedures are another area

115
00:06:23,200 --> 00:06:21,229
of study much of this work is being done

116
00:06:25,149 --> 00:06:23,210
by NASA's Lewis Research Center in

117
00:06:33,309 --> 00:06:25,159
Cleveland and the Ames Research Center

118
00:06:35,980 --> 00:06:33,319
near San Francisco 14 times the wingless

119
00:06:37,570 --> 00:06:35,990
m2 lifting body was dropped over a dry

120
00:06:40,809 --> 00:06:37,580
lake desert near the Flight Research

121
00:06:43,360 --> 00:06:40,819
Center in California craft like the m2

122
00:06:45,550 --> 00:06:43,370
are forerunners of the reusable space

123
00:06:47,980 --> 00:06:45,560
shuttle that will fly a space mission

124
00:06:53,709 --> 00:06:47,990
then returned to Earth landing like an

125
00:06:58,070 --> 00:06:56,269
during his visit to Russia President

126
00:07:00,980 --> 00:06:58,080
Nixon signed an agreement with chairman

127
00:07:04,309 --> 00:07:00,990
Kosygin of the USSR to conduct an earth

128
00:07:07,239 --> 00:07:04,319
orbital rendezvous and docking in 1975

129
00:07:09,409 --> 00:07:07,249
between a u.s. and a Russian spacecraft

130
00:07:11,659 --> 00:07:09,419
engineers from both countries have

131
00:07:17,480 --> 00:07:11,669
already begun working out the details of

132
00:07:19,369 --> 00:07:17,490
the mission to help pave the way for the

133
00:07:21,829 --> 00:07:19,379
longest Skylab mission next year

134
00:07:24,739 --> 00:07:21,839
astronauts Crippen Thornton and Bob co

135
00:07:26,329 --> 00:07:24,749
spent 56 days locked in a 20 foot long

136
00:07:29,089 --> 00:07:26,339
altitude chamber at the manned

137
00:07:31,670 --> 00:07:29,099
spacecraft Center Houston the purpose

138
00:07:33,439 --> 00:07:31,680

was to collect medical data which can be

139
00:07:36,559 --> 00:07:33,449
compared with that collected from the

140
00:07:38,929 --> 00:07:36,569
real Skylab flights Skylab crew training

141
00:07:41,959 --> 00:07:38,939
and spacecraft assembly and testing is

142
00:07:44,839 --> 00:07:41,969
also well underway Skylab will be this

143
00:07:47,480 --> 00:07:44,849
country's first space station it will be

144
00:07:56,879 --> 00:07:47,490
used as a platform to study the Sun the

145
00:08:02,799 --> 00:07:59,890
Apollo 16 with astronauts young

146
00:08:04,719 --> 00:08:02,809
Mattingly in Duke and Apollo 17 with

147
00:08:06,939 --> 00:08:04,729
astronauts Cernan Evans and Schmidt

148
00:08:09,489 --> 00:08:06,949
marked the fifth and sixth times

149
00:08:11,559 --> 00:08:09,499
americans landed on the moon these two

150
00:08:14,920 --> 00:08:11,569
flights also concluded the Apollo

151
00:08:17,860 --> 00:08:14,930
program but as astronaut Eugene Cernan

152
00:08:50,590 --> 00:08:17,870
said before Apollo 17 it's not the end

153
00:10:03,410 --> 00:09:58,660
you