1
00:00:45,520 --> 00:00:58,930
read our mother lost her again

2
00:00:58,940 --> 00:01:07,590
ebay

3
00:01:07,600 --> 00:01:12,320
I am away far away

4
00:01:17,460 --> 00:01:15,120
welcome to this edition of NASA images

5
00:01:19,200 --> 00:01:17,470
I'm Lynn Bondurant during this show

6
00:01:21,270 --> 00:01:19,210
we're focusing on historic NASA

7
00:01:24,180 --> 00:01:21,280
documentary footage showing how

8
00:01:25,950 --> 00:01:24,190
satellite service the short films we are

9
00:01:28,380 --> 00:01:25,960
about to see our Aeronautics and Space

10
00:01:32,310 --> 00:01:28,390
reports and we'll begin with the portion

11
00:01:34,320 --> 00:01:32,320
of one released in 1965 there were two

12
00:01:38,310 --> 00:01:34,330
tyros weather satellites placed in orbit

13
00:01:40,440 --> 00:01:38,320

tyros nine and Tyros 10 between them

14
00:01:42,450 --> 00:01:40,450
they spotted five hurricanes and 14

15
00:01:44,670 --> 00:01:42,460
typhoons their television eyes

16
00:01:46,260 --> 00:01:44,680
transmitted thousands of photographs of

17
00:01:49,889 --> 00:01:46,270
the entire Earth to aid weather

18
00:01:51,930 --> 00:01:49,899
forecasters early bird one the world's

19
00:01:53,460 --> 00:01:51,940
first commercial communication satellite

20
00:01:55,190 --> 00:01:53,470
was launched by NASA for the

21
00:01:58,109 --> 00:01:55,200
communication satellite corporation

22
00:02:00,990 --> 00:01:58,119
early bird provides telephone telegraph

23
00:02:03,749 --> 00:02:01,000
high-speed data and television between

24
00:02:06,180 --> 00:02:03,759
Europe and the United States one of the

25
00:02:09,389 --> 00:02:06,190
14 scientific satellites launched was an

26
00:02:11,190 --> 00:02:09,399
orbiting solar observatory also to all

27
00:02:13,350 --> 00:02:11,200
souls instruments provided information

28
00:02:16,170 --> 00:02:13,360
on the seething hot gases surrounding

29
00:02:18,030 --> 00:02:16,180
the Sun and how its tremendous energy

30
00:02:20,789 --> 00:02:18,040
controls events on earth and other

31
00:02:24,180 --> 00:02:20,799
planets another filmed report released

32
00:02:26,430 --> 00:02:24,190
two years later in 1967 tells how

33
00:02:29,670 --> 00:02:26,440
communication satellites quickly linked

34
00:02:41,160 --> 00:02:29,680
up the world okay we're going straight

35
00:02:42,870 --> 00:02:41,170
up let it fill up because of the

36
00:02:44,819 --> 00:02:42,880
following special one-hour broadcast

37
00:02:48,240 --> 00:02:44,829
programs previously scheduled at this

38
00:03:05,470 --> 00:02:50,430

I'm I to wipe to the bird and make a

39
00:03:22,009 --> 00:03:08,740
Mexico is on the line Mexico is feeding

40
00:03:27,959 --> 00:03:25,110
this event television beamed via

41
00:03:30,149 --> 00:03:27,969
satellite is now commonplace to make it

42
00:03:32,789 --> 00:03:30,159
possible an experimental program was

43
00:03:34,830 --> 00:03:32,799
initiated in 1958 to develop the

44
00:03:37,470 --> 00:03:34,840
technology the capability for

45
00:03:39,690 --> 00:03:37,480
communication satellite systems the

46
00:03:42,030 --> 00:03:39,700
advantage of satellite communications is

47
00:03:44,250 --> 00:03:42,040
height microwave transmitted in a

48
00:03:47,009 --> 00:03:44,260
straight line carries telephone teletype

49
00:03:49,289 --> 00:03:47,019
and TV but a hill in the path of a

50
00:03:51,780 --> 00:03:49,299
microwave tower can block the signal and

51
00:03:54,770 --> 00:03:51,790
the system stopped at the ocean's edge

52
00:03:58,259 --> 00:03:54,780
until we had communication satellites

53
00:04:00,569 --> 00:03:58,269
echo NASA's first experimental system

54
00:04:02,939 --> 00:04:00,579
was a passive communication satellite

55
00:04:05,670 --> 00:04:02,949
passive because it served as a giant

56
00:04:07,890 --> 00:04:05,680
mirror reflecting signals transmitted by

57
00:04:11,520 --> 00:04:07,900
one ground station to the receiver of

58
00:04:13,500 --> 00:04:11,530
another then telstar and investigations

59
00:04:15,780 --> 00:04:13,510
of active communication satellites

60
00:04:18,060 --> 00:04:15,790
called active because they have the

61
00:04:20,900 --> 00:04:18,070
ability to receive amplify and

62
00:04:24,450 --> 00:04:20,910
retransmits signals to distant locations

63
00:04:26,700 --> 00:04:24,460

it was AT&T still star that provided the

64
00:04:33,959 --> 00:04:26,710
first live intercontinental television

65
00:04:39,640 --> 00:04:37,779
presley page because telstar was in

66
00:04:41,830 --> 00:04:39,650
sight of ground stations for short

67
00:04:44,559 --> 00:04:41,840
periods of time transmissions were

68
00:04:52,029 --> 00:04:44,569
intermittent another medium altitude

69
00:04:56,719 --> 00:04:54,350
thousands of tests and experiments were

70
00:04:58,219 --> 00:04:56,729
conducted over relay many involving

71
00:05:01,610 --> 00:04:58,229
transatlantic and trans-pacific

72
00:05:04,129 --> 00:05:01,620
television transmissions next a

73
00:05:06,559 --> 00:05:04,139
high-altitude satellite orbiting at the

74
00:05:09,520 --> 00:05:06,569
same relative speed as Earth appearing

75
00:05:12,529 --> 00:05:09,530
to hover at one point at all times

76
00:05:14,450 --> 00:05:12,539
NASA's experimental simcom satellites

77
00:05:17,510 --> 00:05:14,460
were the first to be placed in such

78
00:05:19,730 --> 00:05:17,520
synchronous orbits it was via syncom 3

79
00:05:22,150 --> 00:05:19,740
that live television coverage of the

80
00:05:25,400 --> 00:05:22,160
Tokyo Olympic Games was accomplished

81
00:05:26,810 --> 00:05:25,410
from experimental to operational the

82
00:05:29,749 --> 00:05:26,820
communications satellite corporation

83
00:05:30,980 --> 00:05:29,759
adapted the sin calm design concept to

84
00:05:33,730 --> 00:05:30,990
the world's first commercial

85
00:05:36,650 --> 00:05:33,740
communication satellite early bird one

86
00:05:38,990 --> 00:05:36,660
with early bird and later operational

87
00:05:41,120 --> 00:05:39,000
communication satellites long-distance

88
00:05:42,740 --> 00:05:41,130

telephone telegraph and television

89
00:05:46,219 --> 00:05:42,750
transmissions have become a common

90
00:05:48,409 --> 00:05:46,229
occurrence here heart surgery seen

91
00:05:51,830 --> 00:05:48,419
thousands of miles away as it was

92
00:05:54,529 --> 00:05:51,840
performed to test even newer

93
00:05:56,540 --> 00:05:54,539
communications concepts NASA is placing

94
00:06:00,110 --> 00:05:56,550
in orbit a series of applications

95
00:06:02,240 --> 00:06:00,120
technology satellites they will be used

96
00:06:05,149 --> 00:06:02,250
to try out new systems for improving

97
00:06:07,550 --> 00:06:05,159
aircraft communication color television

98
00:06:10,270 --> 00:06:07,560
and many other advanced experiments

99
00:06:12,200 --> 00:06:10,280
whether spanning continents or oceans

100
00:06:14,240 --> 00:06:12,210
experimental and operational

101
00:06:20,809 --> 00:06:14,250
communication satellites are playing an

102
00:06:26,429 --> 00:06:23,969
not only our satellites used to help the

103
00:06:29,089 --> 00:06:26,439
world communicate better but they are

104
00:06:37,260 --> 00:06:29,099
used to peer into the universe as this

105
00:06:39,330 --> 00:06:37,270
1971 film shows recently a small

106
00:06:41,790 --> 00:06:39,340
astronomy satellite nicknamed SAS was

107
00:06:44,550 --> 00:06:41,800
launched from a platform of Kenya South

108
00:06:46,260 --> 00:06:44,560
Africa managing the project for NASA's

109
00:06:48,749 --> 00:06:46,270
Goddard Space Flight Center in Maryland

110
00:06:51,510 --> 00:06:48,759
mrs. marjorie townsend here she

111
00:06:53,969 --> 00:06:51,520
describes the SAS mission the mission of

112
00:06:56,339 --> 00:06:53,979
the small astronomy satellite is to map

113
00:06:59,519 --> 00:06:56,349

the celestial sphere for x-ray sources

114
00:07:01,140 --> 00:06:59,529
these are stars that radiate x-rays and

115
00:07:04,050 --> 00:07:01,150
it's only since the advent of the Space

116
00:07:06,480 --> 00:07:04,060
Age that we even knew that there were

117
00:07:09,059 --> 00:07:06,490
stars in the sky that did send out

118
00:07:12,390 --> 00:07:09,069
x-rays because x-rays don't penetrate

119
00:07:13,950 --> 00:07:12,400
the atmosphere the astrophysicists hope

120
00:07:16,739 --> 00:07:13,960
that they will help to learn the origin

121
00:07:20,909 --> 00:07:16,749
of the universe from the data that they

122
00:07:23,100 --> 00:07:20,919
get back the best launch site from which

123
00:07:26,700 --> 00:07:23,110
to launch high-energy astronomy

124
00:07:28,709 --> 00:07:26,710
experiments is near the equator at the

125
00:07:31,200 --> 00:07:28,719
san marco launch site owned and operated

126
00:07:33,600 --> 00:07:31,210
by the italian government this

127
00:07:37,139 --> 00:07:33,610
particular launch site is a very large

128
00:07:40,079 --> 00:07:37,149
barge elevated on several legs above the

129
00:07:42,290 --> 00:07:40,089
surface of the ocean three miles east of

130
00:07:47,100 --> 00:07:42,300
the coast of Kenya in the Indian Ocean

131
00:07:49,219 --> 00:07:47,110
sass one weighs about 318 pounds and is

132
00:07:54,029 --> 00:07:49,229
orbiting the Earth every hour and a half

133
00:07:56,129 --> 00:07:54,039
sending back large quantities of data we

134
00:07:57,929 --> 00:07:56,139
asked mrs. Townsend how they ensure the

135
00:08:00,839 --> 00:07:57,939
spacecraft does what it's supposed to

136
00:08:03,239 --> 00:08:00,849
once in space a very great deal of

137
00:08:06,360 --> 00:08:03,249
effort and testing goes into building a

138
00:08:08,459 --> 00:08:06,370

successful spacecraft for example every

139
00:08:10,379 --> 00:08:08,469
transistor and integrated circuit is

140
00:08:12,450 --> 00:08:10,389
tested with an x-ray machine to see if

141
00:08:15,719 --> 00:08:12,460
there's anything inside that could cause

142
00:08:17,969 --> 00:08:15,729
a problem later on only tested

143
00:08:21,329 --> 00:08:17,979
components are used in the fabrication

144
00:08:22,710 --> 00:08:21,339
of circuit cards that eventually go into

145
00:08:26,500 --> 00:08:22,720
the spacecraft

146
00:08:29,320 --> 00:08:26,510
the inter connecting harness is built

147
00:08:33,060 --> 00:08:29,330
with very great care and tested with

148
00:08:36,430 --> 00:08:33,070
extreme care as is each circuit card

149
00:08:39,490 --> 00:08:36,440
before they're all put together into the

150
00:08:41,920 --> 00:08:39,500
final spacecraft configuration then the

151
00:08:44,710 --> 00:08:41,930
total spacecraft is checked electrically

152
00:08:47,230 --> 00:08:44,720
for many many hours to make sure that

153
00:08:49,510 --> 00:08:47,240
it's performing perfectly the small

154
00:08:55,150 --> 00:08:49,520
astronomy satellite a little spacecraft

155
00:08:57,640 --> 00:08:55,160
doing a big job another job

156
00:09:00,970 --> 00:08:57,650
earth-orbiting satellites perform is

157
00:09:03,220 --> 00:09:00,980
earth observation satellites can look at

158
00:09:06,120 --> 00:09:03,230
earth below to find natural resources

159
00:09:10,540 --> 00:09:06,130
and can do many other important jobs to

160
00:09:13,570 --> 00:09:10,550
this 1972 pre-launch film shows us such

161
00:09:16,180 --> 00:09:13,580
a satellite it's called the earth

162
00:09:18,580 --> 00:09:16,190
resources technology satellite weighing

163
00:09:22,990 --> 00:09:18,590

nearly a ton the butterfly shaped craft

164
00:09:24,220 --> 00:09:23,000
is 10 feet tall by 11 feet wide this is

165
00:09:26,650 --> 00:09:24,230
the business end of the Earth's

166
00:09:28,750 --> 00:09:26,660
satellite housed here are the cameras

167
00:09:30,880 --> 00:09:28,760
and sensors that will always be pointed

168
00:09:33,970 --> 00:09:30,890
earthward seeing and electronically

169
00:09:36,400 --> 00:09:33,980
touching the earth what can the Earth's

170
00:09:38,440 --> 00:09:36,410
see and sense from its vantage point in

171
00:09:41,080 --> 00:09:38,450
space these are some of the things

172
00:09:43,060 --> 00:09:41,090
experimenters hope to study it can

173
00:09:45,130 --> 00:09:43,070
detect water pollution trends and

174
00:09:49,270 --> 00:09:45,140
monitor pollutant concentrations in our

175
00:09:51,370 --> 00:09:49,280
air by showing rainfall and snow levels

176
00:09:56,470 --> 00:09:51,380
allow quicker prediction of potential

177
00:09:59,950 --> 00:09:56,480
floods monitor crop conditions provide

178
00:10:03,940 --> 00:09:59,960
timber inventories spot land-use

179
00:10:05,650 --> 00:10:03,950
patterns locate underwater features in

180
00:10:08,980 --> 00:10:05,660
our oceans that are hazardous to

181
00:10:12,850 --> 00:10:08,990
navigation catalog surface rocks and

182
00:10:16,840 --> 00:10:12,860
mineral formation chart changes in ocean

183
00:10:21,310 --> 00:10:16,850
currents and generally improve the

184
00:10:23,320 --> 00:10:21,320
mapping of earth the earth resources

185
00:10:26,650 --> 00:10:23,330
technology satellite will soon be

186
00:10:30,700 --> 00:10:26,660
launched by NASA into a 564 mile high

187
00:10:32,950 --> 00:10:30,710
orbit circling the world 14 times daily

188
00:10:34,510 --> 00:10:32,960

the Earth's cameras and sensors will

189
00:10:36,640 --> 00:10:34,520
methodically record over

190
00:10:40,000 --> 00:10:36,650
lapping images of large sections of the

191
00:10:42,640 --> 00:10:40,010
globe earth resources technology

192
00:10:44,680 --> 00:10:42,650
satellite a revolutionary tool that

193
00:10:49,110 --> 00:10:44,690
holds great promise for continually

194
00:10:56,230 --> 00:10:52,510
now let's see a post launch film clip

195
00:11:00,310 --> 00:10:56,240
from 1975 which shows results from the

196
00:11:02,200 --> 00:11:00,320
Landsat earth resources satellite color

197
00:11:04,150 --> 00:11:02,210
infrared photography was developed as a

198
00:11:06,670 --> 00:11:04,160
camouflage detection film during the

199
00:11:08,470 --> 00:11:06,680
Second World War now the film is

200
00:11:10,270 --> 00:11:08,480
designed to record the reflected energy

201
00:11:12,340 --> 00:11:10,280
as read and this is why on color

202
00:11:14,620 --> 00:11:12,350
infrared film you'll see that vegetation

203
00:11:17,740 --> 00:11:14,630
trees or grasses and so on show up is

204
00:11:20,230 --> 00:11:17,750
red and simply insert it these four

205
00:11:22,450 --> 00:11:20,240
areas here on this very north is keef of

206
00:11:24,790 --> 00:11:22,460
the earth resources observation system

207
00:11:26,980 --> 00:11:24,800
at nasa's space technology laboratories

208
00:11:29,380 --> 00:11:26,990
near New Orleans he actually works for

209
00:11:31,390 --> 00:11:29,390
the Department of Interior several other

210
00:11:34,030 --> 00:11:31,400
federal and state agencies make use of

211
00:11:35,530 --> 00:11:34,040
the big NASA facility where moon rocket

212
00:11:38,680 --> 00:11:35,540
engines were tested during project

213
00:11:40,230 --> 00:11:38,690

Apollo Gary North spends a lot of his

214
00:11:42,550 --> 00:11:40,240
time showing city planners

215
00:11:44,710 --> 00:11:42,560
conservationists engineers and farmers

216
00:11:47,200 --> 00:11:44,720
how to read and acquired Landsat

217
00:11:50,440 --> 00:11:47,210
satellite pictures pictures that could

218
00:11:53,500 --> 00:11:50,450
usefully serve their individual needs we

219
00:11:55,480 --> 00:11:53,510
find it's almost an old cliche but to

220
00:11:57,730 --> 00:11:55,490
say that most people don't know what's

221
00:11:59,440 --> 00:11:57,740
happening they're not familiar with the

222
00:12:01,600 --> 00:11:59,450
fact that the Department of Interior has

223
00:12:04,180 --> 00:12:01,610
a space program or that nASA has

224
00:12:07,360 --> 00:12:04,190
designed an earth resources satellite

225
00:12:09,970 --> 00:12:07,370
which helps may in inventory resources

226
00:12:12,700 --> 00:12:09,980
and look at pollution and so on usually

227
00:12:15,520 --> 00:12:12,710
they thought of Apollo launches or the

228
00:12:17,830 --> 00:12:15,530
actual main theme of the Apollo program

229
00:12:21,220 --> 00:12:17,840
to lay in the safely return man from the

230
00:12:23,020 --> 00:12:21,230
moon we've all heard you know what are

231
00:12:25,120 --> 00:12:23,030
the applications beyond this type of

232
00:12:26,830 --> 00:12:25,130
thing and and the remote sensing space

233
00:12:29,770 --> 00:12:26,840
business is one of the biggest ones we

234
00:12:31,870 --> 00:12:29,780
feel North described information that

235
00:12:33,910 --> 00:12:31,880
could be helpful in several areas the

236
00:12:35,740 --> 00:12:33,920
use of the remotely sensed data for

237
00:12:38,320 --> 00:12:35,750
geologic applications is one of the most

238
00:12:40,890 --> 00:12:38,330

promising at the present time being able

239
00:12:43,790 --> 00:12:40,900
to detect new the geologic structure

240
00:12:46,519 --> 00:12:43,800
faults liniments these types of things

241
00:12:48,500 --> 00:12:46,529
hold a great key to potential new

242
00:12:51,410 --> 00:12:48,510
deposits of minerals and petroleum and

243
00:12:53,930 --> 00:12:51,420
so on geographic applications usually

244
00:12:56,570 --> 00:12:53,940
take the form of land-use analysis this

245
00:12:59,110 --> 00:12:56,580
is land-use mapping and planning or any

246
00:13:02,540 --> 00:12:59,120
basic natural resource inventory

247
00:13:05,150 --> 00:13:02,550
assessment program and we find that with

248
00:13:08,660 --> 00:13:05,160
the satellite data that you can pretty

249
00:13:13,759 --> 00:13:08,670
well map such categories as agriculture

250
00:13:16,579 --> 00:13:13,769
forestry water urban areas in the field

251
00:13:18,829 --> 00:13:16,589
of snow monitoring where the snow line

252
00:13:20,000 --> 00:13:18,839
is therefore as it melts during the

253
00:13:22,519 --> 00:13:20,010
spring maybe we can have a better idea

254
00:13:24,410 --> 00:13:22,529
of the amount of water that enters the

255
00:13:26,930 --> 00:13:24,420
ground and surface water systems and

256
00:13:28,819 --> 00:13:26,940
just monitoring the surface extent of

257
00:13:31,370 --> 00:13:28,829
lakes and ponds or an area like in South

258
00:13:34,639 --> 00:13:31,380
Florida where water is very important to

259
00:13:36,980 --> 00:13:34,649
the wildlife the Everglades National

260
00:13:39,650 --> 00:13:36,990
Park and of course the human systems

261
00:13:41,269 --> 00:13:39,660
Miami and so on they must all draw this

262
00:13:43,519 --> 00:13:41,279
type of thing and we can watch this with

263
00:13:45,560 --> 00:13:43,529

a repetitive coverage your satellite

264
00:13:48,230 --> 00:13:45,570
data comes with four blocks from mapping

265
00:13:52,090 --> 00:13:48,240
to monitoring range lands and grasslands

266
00:13:54,380 --> 00:13:52,100
to land sense 570 miles out in space

267
00:13:57,380 --> 00:13:54,390
continuously survey our natural

268
00:13:58,940 --> 00:13:57,390
resources and return thousands of useful

269
00:14:01,220 --> 00:13:58,950
images that can be made quickly

270
00:14:03,769 --> 00:14:01,230
available from computer storage to

271
00:14:05,840 --> 00:14:03,779
anyone who needs them that you think

272
00:14:08,420 --> 00:14:05,850
might be of use to you in the field of

273
00:14:10,760 --> 00:14:08,430
communications nasa over the years has

274
00:14:13,130 --> 00:14:10,770
developed experimental communication

275
00:14:15,970 --> 00:14:13,140
satellites which were used to advance

276
00:14:18,889 --> 00:14:15,980
the state-of-the-art this pre launch

277
00:14:25,460 --> 00:14:18,899
1974 film describes one of those

278
00:14:28,100 --> 00:14:25,470
satellites it's called atsf well 80 S

279
00:14:30,920 --> 00:14:28,110
stands for application technology

280
00:14:32,360 --> 00:14:30,930
satellite dr. Wernher von Braun is vice

281
00:14:34,880 --> 00:14:32,370
president for engineering and

282
00:14:36,949 --> 00:14:34,890
development Fairchild industries builder

283
00:14:39,560 --> 00:14:36,959
of the soon-to-be-launched atsf

284
00:14:41,900 --> 00:14:39,570
spacecraft through master ground

285
00:14:44,720 --> 00:14:41,910
stations ATS will broadcast television

286
00:14:47,090 --> 00:14:44,730
programs to small inexpensive antenna

287
00:14:49,670 --> 00:14:47,100
receivers in other words for the first

288
00:14:53,060 --> 00:14:49,680

time here a satellite has enough power

289
00:14:55,970 --> 00:14:53,070
in enough beaming capability installed

290
00:14:57,180 --> 00:14:55,980
but the signal received on the ground is

291
00:14:59,440 --> 00:14:57,190
strong enough or is

292
00:15:02,710 --> 00:14:59,450
essentially by a normal television

293
00:15:05,050 --> 00:15:02,720
receiver as a result we can equip

294
00:15:07,930 --> 00:15:05,060
thousands of remote locations with

295
00:15:10,810 --> 00:15:07,940
receiver sets that can get the benefit

296
00:15:13,689 --> 00:15:10,820
of direct television the most dominant

297
00:15:15,970 --> 00:15:13,699
part of a TS is its 30-foot antenna that

298
00:15:19,720 --> 00:15:15,980
beam signals to the ground it's shown

299
00:15:21,340 --> 00:15:19,730
here unfolding as it will in space from

300
00:15:23,829 --> 00:15:21,350
its twenty three thousand mile high

301
00:15:26,530 --> 00:15:23,839
orbit 80's can travel around the earth

302
00:15:29,079 --> 00:15:26,540
once every 24 hours since the Earth

303
00:15:31,750 --> 00:15:29,089
rotates at the same speed the satellite

304
00:15:33,819 --> 00:15:31,760
appears stationary during its first year

305
00:15:36,910 --> 00:15:33,829
of operation it will be put to good use

306
00:15:38,710 --> 00:15:36,920
over the United States one of its major

307
00:15:43,509 --> 00:15:38,720
jobs will be to provide health services

308
00:15:47,470 --> 00:15:43,519
to remote regions imagine a nurse in

309
00:15:49,750 --> 00:15:47,480
remote settlement in Alaska is trying to

310
00:15:52,870 --> 00:15:49,760
give birth to a baby and runs into a

311
00:15:54,910 --> 00:15:52,880
medical complication then she can talk

312
00:15:58,060 --> 00:15:54,920
back through the satellite using

313
00:16:01,210 --> 00:15:58,070

satellite as a relay to get the advice

314
00:16:03,990 --> 00:16:01,220
and support from a medical doctor see in

315
00:16:07,800 --> 00:16:04,000
the contiguous states or even from

316
00:16:12,300 --> 00:16:07,810
Anchorage and he in turn can provide

317
00:16:15,939 --> 00:16:12,310
pictorial material as well as voice

318
00:16:18,280 --> 00:16:15,949
assistance to the nurse while he is

319
00:16:20,610 --> 00:16:18,290
delivering the baby on real-time in

320
00:16:23,319 --> 00:16:20,620
other words besides the health services

321
00:16:25,180 --> 00:16:23,329
educational programs ranging from career

322
00:16:28,960 --> 00:16:25,190
guidance to teacher training will be

323
00:16:30,819 --> 00:16:28,970
telecast to those who need it most it

324
00:16:32,590 --> 00:16:30,829
has been estimated that in the Rocky

325
00:16:36,939 --> 00:16:32,600
Mountain States alone there are about

326
00:16:38,500 --> 00:16:36,949
three million adult illiterate in

327
00:16:41,139 --> 00:16:38,510
addition there of course the children

328
00:16:44,199 --> 00:16:41,149
who also sometimes have very marginal

329
00:16:47,410 --> 00:16:44,209
school opportunities now as far as

330
00:16:50,590 --> 00:16:47,420
Alaska is concerned there are about

331
00:16:52,750 --> 00:16:50,600
300,000 people in Alaska and 50,000 of

332
00:16:55,900 --> 00:16:52,760
these people are estimated to live in

333
00:16:57,850 --> 00:16:55,910
settlements that have no permanent road

334
00:16:59,620 --> 00:16:57,860
access and of course during the winter

335
00:17:02,050 --> 00:16:59,630
months and windows about eight months in

336
00:17:04,150 --> 00:17:02,060
the last card of a year they are not

337
00:17:07,210 --> 00:17:04,160
accessible at all because of ice and

338
00:17:09,819 --> 00:17:07,220

snow and darkness so they are completely

339
00:17:10,930 --> 00:17:09,829
excuse me quedo and with this satellite

340
00:17:13,280 --> 00:17:10,940
system

341
00:17:15,890 --> 00:17:13,290
effective school service could be

342
00:17:18,770 --> 00:17:15,900
rendered to these settlements in Alaska

343
00:17:21,410 --> 00:17:18,780
as well during the second year of

344
00:17:24,490 --> 00:17:21,420
operation some five thousand villages in

345
00:17:29,360 --> 00:17:24,500
India will receive telecasts from 80s

346
00:17:33,410 --> 00:17:29,370
this example was India where seventy

347
00:17:36,530 --> 00:17:33,420
percent of a population of 570 million

348
00:17:40,730 --> 00:17:36,540
people will benefit from communication

349
00:17:43,820 --> 00:17:40,740
satellites by having at last some

350
00:17:46,640 --> 00:17:43,830
education available to themselves as a

351
00:17:50,300 --> 00:17:46,650
classical example our program that

352
00:17:52,700 --> 00:17:50,310
allegedly was the sort of a thing only

353
00:17:55,340 --> 00:17:52,710
the super rich can afford is now

354
00:18:00,130 --> 00:17:55,350
directly benefiting the poorest of the

355
00:18:03,110 --> 00:18:00,140
poor health and educational television

356
00:18:05,960 --> 00:18:03,120
transmissions navigation and air traffic

357
00:18:08,540 --> 00:18:05,970
control weather research these are but a

358
00:18:12,860 --> 00:18:08,550
few of many experiments plan for the new

359
00:18:16,220 --> 00:18:12,870
applications technology satellite the

360
00:18:19,130 --> 00:18:16,230
next film made in 1975 shows how the

361
00:18:26,490 --> 00:18:19,140
applications technology satellite was

362
00:18:26,500 --> 00:18:31,000
like a flowers its way

363
00:18:35,710 --> 00:18:33,640

the Rocky Mountains one-third the

364
00:18:37,750 --> 00:18:35,720
landmass of the united states yet

365
00:18:40,270 --> 00:18:37,760
inhabited by only four percent of the

366
00:18:42,580 --> 00:18:40,280
nation's people thousands of small

367
00:18:45,490 --> 00:18:42,590
communities inaccessible by ordinary

368
00:18:48,760 --> 00:18:45,500
means of communication exist in relative

369
00:18:51,040 --> 00:18:48,770
isolation now with the help of NASA's

370
00:18:53,350 --> 00:18:51,050
application technology satellites a

371
00:18:55,060 --> 00:18:53,360
unique educational services being

372
00:19:00,010 --> 00:18:55,070
offered to many of these remote

373
00:19:02,620 --> 00:19:00,020
locations good morning welcome to timing

374
00:19:04,900 --> 00:19:02,630
I'm gene getting I'm Karen beard today

375
00:19:07,990 --> 00:19:04,910
we'd like to talk with blanding Utah and

376
00:19:10,360 --> 00:19:08,000
buzzy Montana we can to test the

377
00:19:13,150 --> 00:19:10,370
effectiveness of the system junior high

378
00:19:15,310 --> 00:19:13,160
school students in 56 rural schools

379
00:19:17,620 --> 00:19:15,320
scattered over eight states including

380
00:19:20,160 --> 00:19:17,630
this one in blanding Utah receive

381
00:19:23,290 --> 00:19:20,170
educational television programs daily

382
00:19:25,450 --> 00:19:23,300
the program's dealing with decision

383
00:19:27,610 --> 00:19:25,460
making and career education are

384
00:19:29,470 --> 00:19:27,620
transmitted via satellite from the

385
00:19:32,400 --> 00:19:29,480
Federation of Rocky Mountain States

386
00:19:35,380 --> 00:19:32,410
television production Center in Denver

387
00:19:37,990 --> 00:19:35,390
using simple inexpensive antennas the

388
00:19:40,030 --> 00:19:38,000

schools receive color television and a

389
00:19:42,100 --> 00:19:40,040
three of the sites in each state the

390
00:19:44,130 --> 00:19:42,110
students can also talk to their TV

391
00:19:47,740 --> 00:19:44,140
teachers in Denver it's called

392
00:19:49,660 --> 00:19:47,750
interaction there is Tuesday as you know

393
00:19:52,660 --> 00:19:49,670
that means that today's program talked

394
00:19:56,700 --> 00:19:52,670
about decision-making again it talked a

395
00:19:59,170 --> 00:19:56,710
little bit about investigating the your

396
00:20:01,750 --> 00:19:59,180
alternatives gathering information about

397
00:20:10,230 --> 00:20:01,760
them checking out their reliability and

398
00:20:10,240 --> 00:20:13,900
deal question

399
00:20:23,560 --> 00:20:21,640
planning with this is BS everyone why

400
00:20:26,470 --> 00:20:23,570
are the three did you making process is

401
00:20:28,390 --> 00:20:26,480
so important question from landing is

402
00:20:30,610 --> 00:20:28,400
why is it why are the decision why is

403
00:20:33,580 --> 00:20:30,620
the decision making process so important

404
00:20:36,490 --> 00:20:33,590
how many people make decisions

405
00:20:38,020 --> 00:20:36,500
throughout their lifetime that they

406
00:20:40,330 --> 00:20:38,030
don't look at all the possible options

407
00:20:41,710 --> 00:20:40,340
that they have in fact many decisions

408
00:20:43,570 --> 00:20:41,720
are made without having all the

409
00:20:45,610 --> 00:20:43,580
information we asked some of the

410
00:20:47,230 --> 00:20:45,620
students at san juan junior high school

411
00:20:48,700 --> 00:20:47,240
in blanding how they feel they are

412
00:20:51,970 --> 00:20:48,710
benefiting from the satellite

413
00:20:54,730 --> 00:20:51,980

transmitted TV well let's paola do a

414
00:20:56,410 --> 00:20:54,740
certain job will other good do you tell

415
00:20:58,259 --> 00:20:56,420
them to stuff like that on TV you can

416
00:21:04,190 --> 00:20:58,269
learn young

417
00:21:06,289 --> 00:21:04,200
sad like coconut Oh their mouths hmm

418
00:21:09,529 --> 00:21:06,299
how much education I need to get a

419
00:21:11,720 --> 00:21:09,539
certain job modest oh how to make

420
00:21:13,970 --> 00:21:11,730
decisions and your critters and what

421
00:21:17,600 --> 00:21:13,980
kind of interests and abilities you need

422
00:21:20,299 --> 00:21:17,610
in certain careers Oh get you out of

423
00:21:22,269 --> 00:21:20,309
going through another class another

424
00:21:24,799 --> 00:21:22,279
major part of the satellite television

425
00:21:26,930 --> 00:21:24,809
transmissions is a course offered every

426
00:21:28,669 --> 00:21:26,940
two weeks for teachers not directly

427
00:21:31,250 --> 00:21:28,679
involved in the career education

428
00:21:33,980 --> 00:21:31,260
programming as with the student

429
00:21:37,639 --> 00:21:33,990
interaction so to the teachers can talk

430
00:21:41,870 --> 00:21:37,649
directly to the experts in Denver be a

431
00:21:45,799 --> 00:21:41,880
71 week min please this is landing we

432
00:21:48,289 --> 00:21:45,809
had a question concerning the financing

433
00:21:50,950 --> 00:21:48,299
or the funds that work the way that you

434
00:21:54,409 --> 00:21:50,960
went about raising a fund for this fair

435
00:21:57,049 --> 00:21:54,419
over how about the process of raising

436
00:21:59,269 --> 00:21:57,059
funds for this fair the first year that

437
00:22:02,299 --> 00:21:59,279
we did it we did seek initial funding

438
00:22:03,529 --> 00:22:02,309

and we went to the Junior League and the

439
00:22:05,149 --> 00:22:03,539
Chamber of Commerce and the State

440
00:22:07,850 --> 00:22:05,159
Department's of Education for that

441
00:22:13,260 --> 00:22:10,950
education via satellite extending

442
00:22:15,149 --> 00:22:13,270
communications into remote locations

443
00:22:20,659 --> 00:22:15,159
through the nation's first widespread

444
00:22:25,380 --> 00:22:23,430
weather satellites of course have been

445
00:22:28,020 --> 00:22:25,390
very important servants for people

446
00:22:31,380 --> 00:22:28,030
across the world our next short clip

447
00:22:33,120 --> 00:22:31,390
from 1975 commemorates the 15th

448
00:22:38,399 --> 00:22:33,130
anniversary of weather satellites

449
00:22:43,359 --> 00:22:41,469
facility oh it's intricate bits but

450
00:22:45,279 --> 00:22:43,369
we've come a long way in weather

451
00:22:47,619 --> 00:22:45,289
forecasting since the early balloon

452
00:22:53,739 --> 00:22:47,629
launching days thanks mainly to weather

453
00:22:56,080 --> 00:22:53,749
satellites just 15 years ago this month

454
00:22:58,989 --> 00:22:56,090
NASA launched the first Tyros weather

455
00:23:00,339 --> 00:22:58,999
satellite from Cape Canaveral the views

456
00:23:02,469 --> 00:23:00,349
of Earth were pretty rudimentary

457
00:23:04,539 --> 00:23:02,479
compared to today's high quality

458
00:23:06,339 --> 00:23:04,549
pictures but they proved that routine

459
00:23:09,669 --> 00:23:06,349
global weather observation by a

460
00:23:12,190 --> 00:23:09,679
satellite was possible with each

461
00:23:14,229 --> 00:23:12,200
succeeding one these weather sentinels

462
00:23:17,080 --> 00:23:14,239
have become more and more sophisticated

463
00:23:19,749 --> 00:23:17,090

here the synchronous meteorological

464
00:23:23,249 --> 00:23:19,759
satellite two are already in orbit with

465
00:23:25,539 --> 00:23:23,259
a third scheduled for launch this fall

466
00:23:27,810 --> 00:23:25,549
besides transmitting cloud cover

467
00:23:30,999 --> 00:23:27,820
pictures every 30 minutes day and night

468
00:23:33,219 --> 00:23:31,009
SMS can receive and send environmental

469
00:23:35,519 --> 00:23:33,229
information from thousands of manned and

470
00:23:39,219 --> 00:23:35,529
unmanned data collection platforms

471
00:23:45,580 --> 00:23:39,229
located at sea in rivers lakes and on

472
00:23:47,739 --> 00:23:45,590
land the synchronous meteorological

473
00:23:49,930 --> 00:23:47,749
satellite pictures are made into film

474
00:23:52,599 --> 00:23:49,940
loops daily at the world weather center

475
00:23:56,430 --> 00:23:52,609
near Washington DC to show cloud

476
00:23:58,330 --> 00:23:56,440
movement over oceans and land masses

477
00:24:00,399 --> 00:23:58,340
meteorologists are hopeful that this

478
00:24:02,440 --> 00:24:00,409
kind of information will give them clues

479
00:24:04,479 --> 00:24:02,450
to the weather conditions that for

480
00:24:07,810 --> 00:24:04,489
instance cause tornadoes and other

481
00:24:10,839 --> 00:24:07,820
fast-moving weather systems weather

482
00:24:12,430 --> 00:24:10,849
satellites over the past 15 years they

483
00:24:15,039 --> 00:24:12,440
have returned more than two million

484
00:24:17,830 --> 00:24:15,049
pictures provided advanced warnings and

485
00:24:22,629 --> 00:24:17,840
allowed no major storm anywhere on the

486
00:24:25,749 --> 00:24:22,639
globe to go undetected our next clip

487
00:24:29,769 --> 00:24:25,759
from 1977 is about an astronomy

488
00:24:31,810 --> 00:24:29,779

satellite which was about to be launched

489
00:24:34,359 --> 00:24:31,820
since the beginning man has been

490
00:24:36,219 --> 00:24:34,369
intrigued by the stars stars spend most

491
00:24:38,169 --> 00:24:36,229
of their lives quietly burning away

492
00:24:40,539 --> 00:24:38,179
their nuclear fuels as if they were

493
00:24:42,549 --> 00:24:40,549
giant reactors they are much more

494
00:24:44,469 --> 00:24:42,559
efficient at producing energy than is

495
00:24:48,159 --> 00:24:44,479
our primitive burning of fuels on earth

496
00:24:50,649 --> 00:24:48,169
today the sun is a small star yet one

497
00:24:53,950 --> 00:24:50,659
second of its output is equal to all the

498
00:24:55,599 --> 00:24:53,960
energy ever consumed on earth great

499
00:24:58,180 --> 00:24:55,609
potential benefits may come from

500
00:25:00,279 --> 00:24:58,190
studying and understanding the stars how

501
00:25:02,409 --> 00:25:00,289
they produce energy and then how they

502
00:25:05,109 --> 00:25:02,419
transmitted over millions of miles of

503
00:25:08,469 --> 00:25:05,119
empty space losing little if any of its

504
00:25:10,690 --> 00:25:08,479
intensity along the way all astronomy

505
00:25:13,119 --> 00:25:10,700
was done by human eyes and telescopes

506
00:25:15,519 --> 00:25:13,129
before space exploration with men and

507
00:25:16,989 --> 00:25:15,529
satellites allowed scientists to lift

508
00:25:19,899 --> 00:25:16,999
their instruments above the Earth's

509
00:25:21,940 --> 00:25:19,909
distorting atmosphere high energy

510
00:25:26,649 --> 00:25:21,950
streaming out from the stars is hidden

511
00:25:30,039 --> 00:25:26,659
by this atmosphere this is he'll short

512
00:25:32,469 --> 00:25:30,049
for high-energy astronomy observatory it

513
00:25:35,560 --> 00:25:32,479

is the first of three such star Watchers

514
00:25:39,430 --> 00:25:35,570
being readied by trw for launch between

515
00:25:41,829 --> 00:25:39,440
now and 1979 weighing nearly three tons

516
00:25:43,719 --> 00:25:41,839
jijo is made up of two parts and

517
00:25:47,349 --> 00:25:43,729
experiments module and a spacecraft

518
00:25:49,719 --> 00:25:47,359
module once in space this first

519
00:25:52,419 --> 00:25:49,729
high-energy astronomy observatory will

520
00:25:54,879 --> 00:25:52,429
rotate slowly so that over a six-month

521
00:25:57,269 --> 00:25:54,889
period of time it will scan the entire

522
00:26:00,729 --> 00:25:57,279
cosmos mapping everything it observes

523
00:26:04,749 --> 00:26:00,739
pulsars quasars supernovae and black

524
00:26:07,299 --> 00:26:04,759
holes heal a new space observatory to

525
00:26:10,060 --> 00:26:07,309
help us understand how extremely high

526
00:26:12,459 --> 00:26:10,070
energies are generated in space perhaps

527
00:26:15,219 --> 00:26:12,469
unlocking secrets of the evolution of

528
00:26:19,419 --> 00:26:15,229
the universe even showing new ways to

529
00:26:22,589 --> 00:26:19,429
generate power here on earth Eoin was

530
00:26:24,879 --> 00:26:22,599
successfully launched in august 12 1977

531
00:26:27,879 --> 00:26:24,889
the satellite was one of the heaviest

532
00:26:31,930 --> 00:26:27,889
launched up until then now let's see a

533
00:26:34,930 --> 00:26:31,940
very short 1977 clip showing animation

534
00:26:37,209 --> 00:26:34,940
about one of heels first discoveries how

535
00:26:39,099 --> 00:26:37,219
stars produce the energy that makes them

536
00:26:40,010 --> 00:26:39,109
burn so bright and then how they

537
00:26:42,080 --> 00:26:40,020
transmit the

538
00:26:44,300 --> 00:26:42,090

through millions of miles of space

539
00:26:46,960 --> 00:26:44,310
losing very little intensity along the

540
00:26:51,260 --> 00:26:46,970
way is of great interest to scientists

541
00:26:53,750 --> 00:26:51,270
to study the stars EO one high-energy

542
00:26:56,810 --> 00:26:53,760
Astronomy Observatory was launched in

543
00:26:59,240 --> 00:26:56,820
august already heels instruments have

544
00:27:01,520 --> 00:26:59,250
found a gigantic star whose x-ray

545
00:27:03,730 --> 00:27:01,530
radiation increases violently over a

546
00:27:06,650 --> 00:27:03,740
period of time then returns to normal

547
00:27:09,380 --> 00:27:06,660
po1 will be joined in its task of

548
00:27:12,590 --> 00:27:09,390
mapping the sky for x-ray sources by two

549
00:27:14,240 --> 00:27:12,600
other observatories in the future that's

550
00:27:17,300 --> 00:27:14,250
all we have for this edition of NASA

551
00:27:19,310 --> 00:27:17,310
images but before we go let me remind

552
00:27:21,530 --> 00:27:19,320
you that you are cordially invited to

553
00:27:24,230 --> 00:27:21,540
see displays here at the Visitor Center

554
00:27:26,150 --> 00:27:24,240
at the NASA Lewis Research Center we are

555
00:27:28,570 --> 00:27:26,160
located near the Hopkins international

556
00:27:31,370 --> 00:27:28,580
airport in Cleveland admission is free