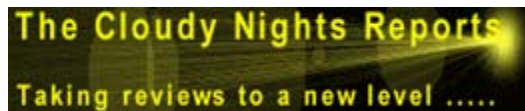


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WildCard Innovations Argo Navis:

So just how does it stack up to the Sky Commander?

[Tom Trusock](#) – 11/2004

Reviewed:	Argo Navis
Features:	<ul style="list-style-type: none">• Digital Telescope Computer• 2 serial interfaces• Dual CPU's• 2 Meg Ram• Multitude of Catalogs

Ok – so I'm lazy.

Well – maybe that's not quite true. There are some nights I just don't believe in excess work. I'm basically a visual observer, and while I do enjoy the challenge of the hunt – I often just want to get to the target. Years ago, I settled on DSC's as my one of my preferred methods of finding DSO's – especially faint fuzzies.

If you are new to DSC (Digital Setting Circles) you might want to start off by reading "[A Digital Setting Circles Primer](#)".

I've owned at least a half dozen different units, among them units from JMI, Celestron, Sky Commander and now the newest kid on the block; the Argo Navis. Coming out of Australia, the Argo makes use of modern technology and components, utilizing not one, but two microprocessors – one a Motorola 5206e ColdFire 40mhz 32bit CPU's (the same family of CPU's used in the popular Palm series of Personal Digital Assistants) and the other a PIC16C505 4MHz 8-bit microcontroller, couple this with 2mb of re-programmable flash memory, 512kb of static Ram, and 8kb of non-volatile Ram. It's powered from 4 AA batteries or an 8 to 16V external source. When used with external power, the Argo offers an LCD heater function to assist in keeping the display functional and dew off.



WildCard Innovations Argo Navis

The display is a two line 16 character red LCD with 100 different brightness settings and

Argo Navis Hots	Argo Navis Nots
<ul style="list-style-type: none">• More objects than any other DSC• Easily interfaced with a computer• Supports multiple OS's• Supported by multiple programs• Easy to create your own target lists• Extremely configurable• Their "Tour Mode" is a Killer App	<ul style="list-style-type: none">• Large Size• Higher cost than other solutions• 178 page manual supplied on PDF

an adjustable contrast control – so there's no reason to complain about this unit being to bright.

It comes with not one, but two onboard serial ports, (RS232 compatible) which support a large number of

transfer speeds. With the optional PC cable it can be interfaced to a computer running Windows, Mac OS or Linux, so one can download user lists (up to around 1100 objects – more on that later) or interface with a program like The Sky, SkyMap Pro, Cartes du Ciel and Xephem. For telescope pointing, it should work with just about any piece of software that supports Meade, Sky Commander or Tangent communications as it can emulate any of those units.

It contains the following catalogs (pretty much in their entirety): Messier, Index Catalog, New General Catalog and the planets, and then selected portions of a boatload of other catalogs for over 29,000 objects in all. Just about (but not quite) everything an amateur would be interested in viewing is here – and if it's not built it, can be fairly easily constructed and downloaded to the unit.

Just to give you an idea of what some of the more interesting “partial” catalogs are, consider the following:

Galaxy Clusters

Abell Galaxies
Hickson Galaxies
Shakhbazian
(*and more*)

Globular Clusters

AM
BH
Djorgovski
E
HP
Liller
Palomar
Ruprecht
Terzan
UKS
(*and more*)

Planetaries

Abell
Baade
AP
Cannon
DDDM
EGB
Fleming
GJJC
Haro
Sanduleak
(*and more*)

Bright Nebulae

Cederblad
Gum
RCW
Sharpless
(*and more*)

Dark Nebulae

Barnard
CB
DBDN
FeSt
GDC
LDN
Sandqvist
(*and more*)

Open Clusters

Collinder
King
Markarian
Tombaugh
Trumpler
Stock
Upgren
(*and more*)

In addition, it also contains various entries for multiple and variable stars, and a Popular Name database.

Although impressive, it doesn't have everything. There were a few absences that I found. The one that stand out the most was an extragalactic globular in M31 – G1 (Mayall II)

Looking at the operating modes on the Wildcard Innovations web site (see links at the bottom of the article) you'll see that list of features is exhausting to read – suffice it to say this unit does just about everything you would want. In addition, it supports just about

any mount you could wish for – including the ServoCat and Starmaster SkyTracker computer systems for dobs.

Literally, I could go on with the list of features for another 4 pages. It does nearly everything you could desire. Instead, I'll concentrate on a few features that the Argo is either unique in providing or does an exceptional job.

Truly cool Argo Navis features:

User selectable Atlas

Reference - Uranometria 2000 (V1), Millennium Star Atlas, Star Atlas 2000 (Uranometria 2000 (V2) and the HB Astroatlas are scheduled for inclusion in future firmware updates)



Argo Navis - communication and power ports

Tour Mode – Argo's Tour mode is one of the coolest features I've seen in a DSC. While tour's certainly aren't a new thing, the way Argo goes about it makes it rather different – and to my mind – an improvement. Argo lets you search a particular catalog in a particular area of the sky (by degrees from your current location or by constellation) for any targets that match the parameters you enter. See the section: *A Typical Night with the Argo Navis* for details. All in all, tour mode is a nice no fuss, no muss way to generate some target lists on very short notice.

Display push to position to hundredths of a degree - While I can't control my undriven mounts to that sort of accuracy, it is pretty cool to see – just how far you are off – assuming your mount is perfectly orthogonal and aligned.

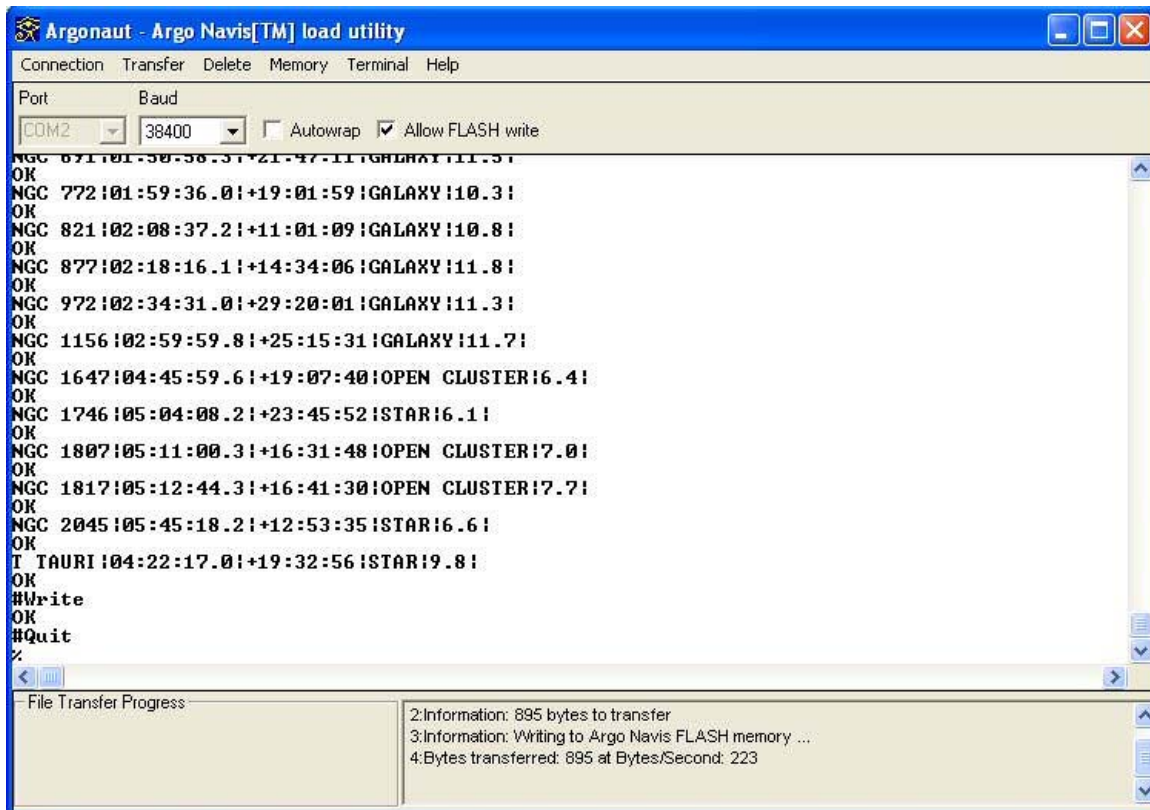
Corrects for Mount Errors derived by using external software. This feature allows for improved accuracy. In addition it corrects for precession and atmospheric refraction. In theory this means higher accuracy for extreme applications.

User loadable catalog - While other computers on the market do offer the ability to create custom observing lists and download them to the DSC, argo is significantly more advanced than the rest in this regard. Argo allows you to download specific updates in multiple categories – Asteroids, Comets, Satellites and a general purpose User category. The User Catalog is one of the best features of the Argo. Capable of holding around 1100 entries, you can easily program the unit with additional information about the targets. You can create your own using a program like SkyMap Pro (there is a Perl application that converts SkyMap Pro to AN format available in the files section of the AN user group) or use an application that ports directly to the Argo like Astro Planner.

A few of the user created downloadable catalogs available from the argo_navis_dtc yahoo group include (but are no means limited to):

- The AL double stars list
- PK Objects, mag 20 and brighter, +90 to -50 (798 objects)
- The Corrected Arp Atlas of Peculiar Galaxies
- Caldwell Catalog
- Herschel 400
- Night Sky Observers Guide (not all constellations available)
- Hickson Compact Galaxy Groups
- Abell Planetary's

Programming the Argo is done via the ArgoNaut software which is included with the argo navis, and designed to run on windows platforms. There a version is also available for linux and Mac.



Argonaut – the Argo Navis Load Utility – Windows Version

It's easy, and FAST, in fact downloading the hundreds of objects in the Abell Planetary catalog only took a matter of seconds.

Not Quite Perfect

Ironically – presented with this with this level of features, I found myself desiring *more*. With older DSC's you took what they offered you and <old codger voice> you were happy about it – gawsh dang it – well, in MY day, we were lucky to be able to find any thing at all..... </old codger voice> Errr – sorry about that, guess I'm feeling my age there. ANYWAY – where was I? Oh yes, with older DSC's you took what they offered and it typically wasn't a lot. With the Argo – I started thinking – for the first time – about things I'd really like to see in a DSC computer, some things that the Argo lacked.

What would I like to see? Well, here's a few features that are on the “wishlist”

- Saved settings for easier use on multiple mounts
- The ability to save a tour - or a list of marked items (so I can get a printout later and have a record of what I've seen)
- The ability to mark observed or not observed on an item in the database.
- The ability to filter by surface brightness in the tour section
- A graphical battery level indicator so I have some idea of how much juice is left rather than just an "ok" indicator
- The ability to add items to a user list while at the scope
- Add Uranometria 2000 V2 and the HB Astroatlas into the list of Atlases
- The ability to specify a “Goto” to a particular RA / Dec

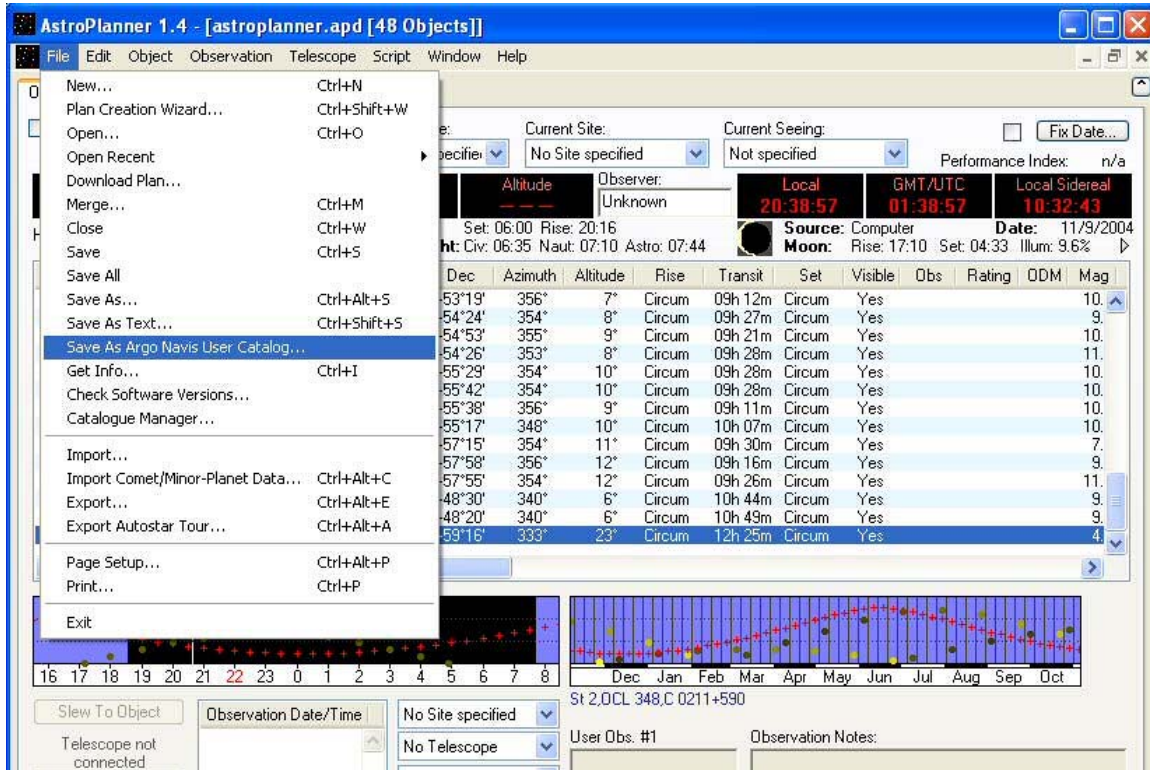
Here's another one of the strengths of the Argo – I posted a list very similar to this in the argo yahoo group a while back, and was shortly answered by the owner / designer – Gary Kopff (WildCard Innovations) whose response indicated to me that they give customer suggestions and ideas all the time they deserve. Not only that, but they've hinted several times that they are “Currently working around the clock” on the next firmware update that contains some of these suggestions. Unlike earlier DSC's the Argo is updateable via PC connection so firmware will be distributed via the internet and can be downloaded free of charge.

Between Gary Meyers (ServoCat and one of the major American distributors) and Gary Kopff (WildCard Innovations) I've experienced absolutely excellent service and support. I've called Gary Meyers on a number of occasions, and was able to talk to him in very short order – I've found him to be excellent to do business with.

Unfortunately, I've had to make use of Gary Meyer's excellent service on a couple of occasions. While the Argo does come with a 1 year warranty, it apparently does not cover the damage caused by my three year old jumping up and down on it. She broke one of the two selection buttons. Gary repaired it extremely quickly and for a very reasonable cost.

I did have another issue with a unit on loan from John Crilly while mine was in for repair. It's amazing how quickly you find you really don't want to be without this unit. I

powered on John's unit, it began to boot and simply hung there. That unit was returned to Australia for inspection and repair.



AstroPlanner – Designed to export directly to AN format – Windows Version

Finally, I should report that I experienced some issues getting the Argo to interface with my Gibraltar. The Gibraltar uses very low resolution encoders (2160 tics), and one evidently has to change the encoder timings (a menu selection on the Argo) to get it to work properly. Both Gary's were extremely helpful in this case – Kopff via e-mail, and Meyers via telephone.

All in all Argo Navis service and technical support is exceedingly friendly, helpful and easy to reach, and I can say my experiences have been very positive.

You can talk stats all day long, but I quickly realized that it really does not give you any idea of what the Argo is actually like to use – with that in mind, I present the following “virtual field trip.”

A Typical Night with the Argo Navis

While driving home from work, the skies miraculously clear, and you anticipate being able to observe for an hour or two this evening.

You downloaded the [Small Wonders: Andromeda](#) target list to your Argo Navis earlier this week (after using the perl application to translate it to AN format and the ArgoNaut

to do the actual transfer) so in addition to the other couple of targets you want to check out you do have a small list. It should be enough to keep you entertained for an hour or two.



The Argo's twin line red LCD display

You wheel out the scope and take a look. Andromeda is completely clouded over – so there goes the target list, but it looks to be too good of a night to just give up – especially considering how poor the weather is this time of year. No, it's not perfectly clear, but it

should be good enough for a few quick looks. But now, what to start with? As you peek through the holes in the trees and clouds, you decide on M15, remembering how wonderful globular clusters appear in your new scope. Ah – you're in luck its smack dab in the middle of your unobstructed area. Next, you power up Argo and take a look at the internal temp – not too cold, and you think you'd rather just operate on the AA's rather than pull out the 12V power pack – but we better check the battery statues to be sure those AA's have enough juice in them. The battery reports ok, and everything looks fine. After doing the Argo's three point align (a fixed reference followed by two alignment stars, taking around 3 minutes) you dial up M15 and slew your dob over and leave the 150x eyepiece in. The target isn't exactly centered in the FOV, but it's pretty close. Since we want to stay in this area of the sky for most of the evening, let's take the time to do an align on M15 – this will up the accuracy of our pointing in the local area. Now, on to the next target.

Looking to the deep south, you see you have a clear shot all the way down to the horizon, and remember you wanted to take a look at NGC253 as well. That one gets dialed that in next. While panning around that area, you notice a nice bright globular – but have no idea what it is. Using the identify mode, you quickly determine that it's NGC288 – AN's description scrolls across the bottom of the screen: **NGC 288 GLOBULAR CLUSTER IN SCULPTOR SIZE 13.8' MAG 8.1 OPEN-TYPE GLOBULAR RA=00:52:48 DEC=-26° 35' 15" UM=VOL 2 307** (UM refers to my chosen catalog, in this case Uranometria 2000 Version 1).

Now you've whetted your appetite for globular observing, but can't recall any the names or positions of any other globular clusters off the top of your head. No problem! You dial in tour mode, select the Misc Globular Cluster catalog, tell it to search within so many degrees of sky and for clusters brighter than a certain magnitude and Engage. Argo then brings up objects in relation to your present position and allows you to quickly and easily view all the readily available globular clusters for your site, time, and sucker holes. While going through the tour, you realize you are somewhere near planetary nebula NGC7009 (it's a pln neb and so wasn't in the tour you set up). You exit tour mode, move to catalog mode and hop down to view the Saturn nebula. When you are finished, you rejoin your tour and pick up where you've left off. After a while you've exhausted the globular list, but the evening's turning out to be better than you hoped – no way do you want to call it now – so you create another tour – Galaxy Clusters. Off into the depths of intergalactic space.

Repeat until sated, and then pack it in for the night.

Argo Navis Vs Sky Commander: Which would I recommend, and why did this review take so long?



Argo Navis, Sky Commander and a Nagler 13mm T6

You will notice, I've pretty much avoided comparisons between the Argo Navis and the Sky Commander up to this point. It would seem to be a natural to compare them, and indeed this was initially planned as a shootout style review. In fact, in "[A DSC Primer](#)" I promised I'd soon be doing just that – and taking a direct look at these two DSC's - the hottest units on the market. In fact it had already been roughed out. One thing lead into another, and I didn't get a chance to start my final revision of that article until early September. Within days I'd discovered that Victor

McKeighan (Sky Engineering) had announced a new version of the Sky Commander would be released shortly. At that point, I decided it might be better to delay the review until I could get a new unit in my hands. That was several months ago. The new Sky Commander is not here yet, but I'm still being told it will be released shortly.

I've decided not to wait any longer. I intend to revisit this topic after the new Sky Commander has been released, but for folks looking to buy now, it's not fair to continue to wait. These two currently reflect the best units on the market, and for someone looking to buy today, they may need to make a choice between them.

I've owned and used a Sky Commander for years, and found them to be much better than most of the Tangent boxes on the market. One notable exception might be in regards to its use on a small scope. While I've not had a chance to use it, the TeleVue Sky Tour would probably be the unit I'd grab for first in this case – simply because it makes use of the Lorenzian 2000+ database which is an excellent match for a small scope. In any case, I'm very very familiar with earlier incarnations of the Sky Commander. I've also found there are a number of – “lightly documented” features on the Sky Commander that greatly enhance its usability. One that I made rather large use of was it's ability to load items into it's (rather limited) onboard user catalog via PC using a utility designed by end user Les Blalock – SkyComp – basically you create your target list with the aid of a

program like SkyMap Pro, then use SkyComp to download it to the user catalog on the Sky Commander. The only problem with this method is that you can't name the targets – the only information that gets assigned is right ascension and declination. In contrast, the Argo allows you to customize your user catalogs to supply as much information as in their standard catalogs.

The screenshot shows the SkyMap Pro interface with a 'Target List Report' dialog box open. The report contains the following data:

Object	RA	Dec	Type	Mag
alpha Pegasi	23h 05m 00.0s	+15° 13' 58"	Star	2.5
beta Pegasi	23h 04m 00.4s	+28° 06' 41"	Star	2.4
epsilon Pegasi	21h 44m 24.9s	+09° 53' 52"	Star	2.4
gamma Pegasi	00h 13m 29.3s	+15° 12' 44"	Star	2.8
M 15	21h 30m 11.7s	+12° 11' 22"	Globular Cluster	6.3
NGC 7317	22h 36m 04.9s	+33° 58' 22"	Galaxy	13.6
NGC 7318-2	22h 36m 11.3s	+33° 59' 39"	Galaxy	13.2
NGC 7318-1	22h 36m 09.7s	+33° 59' 37"	Galaxy	13.4
NGC 7319	22h 36m 16.5s	+34° 00' 14"	Galaxy	13.3
NGC 7320	22h 36m 16.5s	+33° 58' 33"	Galaxy	12.5
NGC 7331	22h 37m 18.1s	+34° 26' 53"	Galaxy	9.5
NGC 7479	23h 05m 11.2s	+12° 20' 58"	Galaxy	10.9
NGC 7619	23h 20m 29.3s	+08° 14' 03"	Galaxy	11.1
NGC 7626	23h 20m 57.3s	+08° 14' 39"	Galaxy	11.2

The dialog box also includes buttons for 'Save...', 'Copy', 'Goto', and 'OK'. The background shows a star map of the Pegasus constellation with various stars and constellations labeled.

SkyMap Pro 10 is capable of generating target lists which can be downloaded to either unit.

If you're reading this, odds are you've probably done research on what these two units offer. Many of the items are similar. If you haven't done the research yet, I'd encourage you to. Feature charts are available from StellarCat (Argo Navis Resellers), and JMI. While not all the features listed on those charts are of great import to the end user, I will say the following. In my opinion, after extended use, I slowly came to the conclusion that the Argo is the better machine. I've been a longtime fan of the Sky Commander, but in the end, the Argo Navis's faster processors, larger memory, ease of use, ease of updating the firmware (flashing vs swapping chips), vastly larger catalog and most importantly Tour Mode, were features that spoke for themselves.

There is one advantage that does not apply to stand alone users, but bears mentioning because it's fairly significant to any who plan on upgrading to a ServoCat or Sky Tracker. The Argo allows for tracking planets, asteroids, comets or even satellites at their own unique rates – *including retrograde as necessary*. The Sky Commander will only allow you to track at the standard sidereal rate.

If we look deeper, we can see that other issues between these two aren't so clear. Some individuals greatly prefer the red LCD of the Argo Navis to the green of the Sky Commander – that was never a problem for me. Some users have complained that the Sky Commander, with only three brightness settings, was way too bright. Well folks, there's a potentiometer inside the unit that will allow you to adjust it further.

And, I'll still contest that are a few items the Sky Commander is still the winner on – size, weight and price.

As I stated above, I gradually grew to appreciate the Argo Navis more and more. While both units do their job well, one unit is clearly more enhanced than the other and offers more for the user who is willing to plumb its depths – the Argo.

Let's not go into this blind however. There are a few drawbacks to the Argo Navis. It's biggest fault would have to be it's size. It's about 3x the size of the sky commander.

The second would be the price – with the Sky Commander units coming in at around \$100 to \$150 less (depending on exchange rates) – Sky Commander is a very attractive alternative for someone who does not need the latest and greatest, but simply wants to get the job done.

Another thing to consider is technical support. It's been my experience that Sky Eng is a little harder to get a hold of than WildCard or StellarCat, but Victor has always been extremely helpful when I've gotten him. I have had less trouble with the Sky Commander than with the Argo Navis, but I suspect that's mainly been the luck of the draw and should not reflect on the quality of the unit itself. I documented some of my Argo Navis issues above, and would like to note that my Sky Commander survived the catapult treatment with nothing more to show for it than a crack in the case and a couple of busted nylon screws.

Bottom line

Between the current Sky Commander and the Argo Navis I'd give the edge to Argo Navis. Both units work, and both work well, but the Argo is the superior machine. And yet, if size and/or cost are major concerns, then you should take a long hard look at the Sky Commander.

Make no mistake – especially when coupled to a moderate or larger scope – Wildcard Innovations has a winner on their hands.

Further reading:

StellarCat's (American Argo Navis Reseller) Argo Navis / Sky Commander / NGC Max comparison chart.

<http://www.stellarcats.com/Graphics/AN%20Compare4.pdf>

JMI's (JMI resells the Argo as the SuperMax) comparison chart

http://www.jimsmobile.com/computer_comparison.htm

WildCard Innovations (Australia) Homepage – downloadable manual, utilities, and firmware updates

<http://www.wildcard-innovations.com.au/downloads.html>

argonautics_dtc Yahoo Group – Helpful files, user catalogs, user support and forums

http://groups.yahoo.com/group/argonautics_dtc/

Sky Commander User Group – Les Balock's SkyComp is located here (among other things)

<http://groups.yahoo.com/group/SkyCommander/>

Sky Engineering's Sky Commander Homepage – Manuals and software

<http://www.skyeng.com/>

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